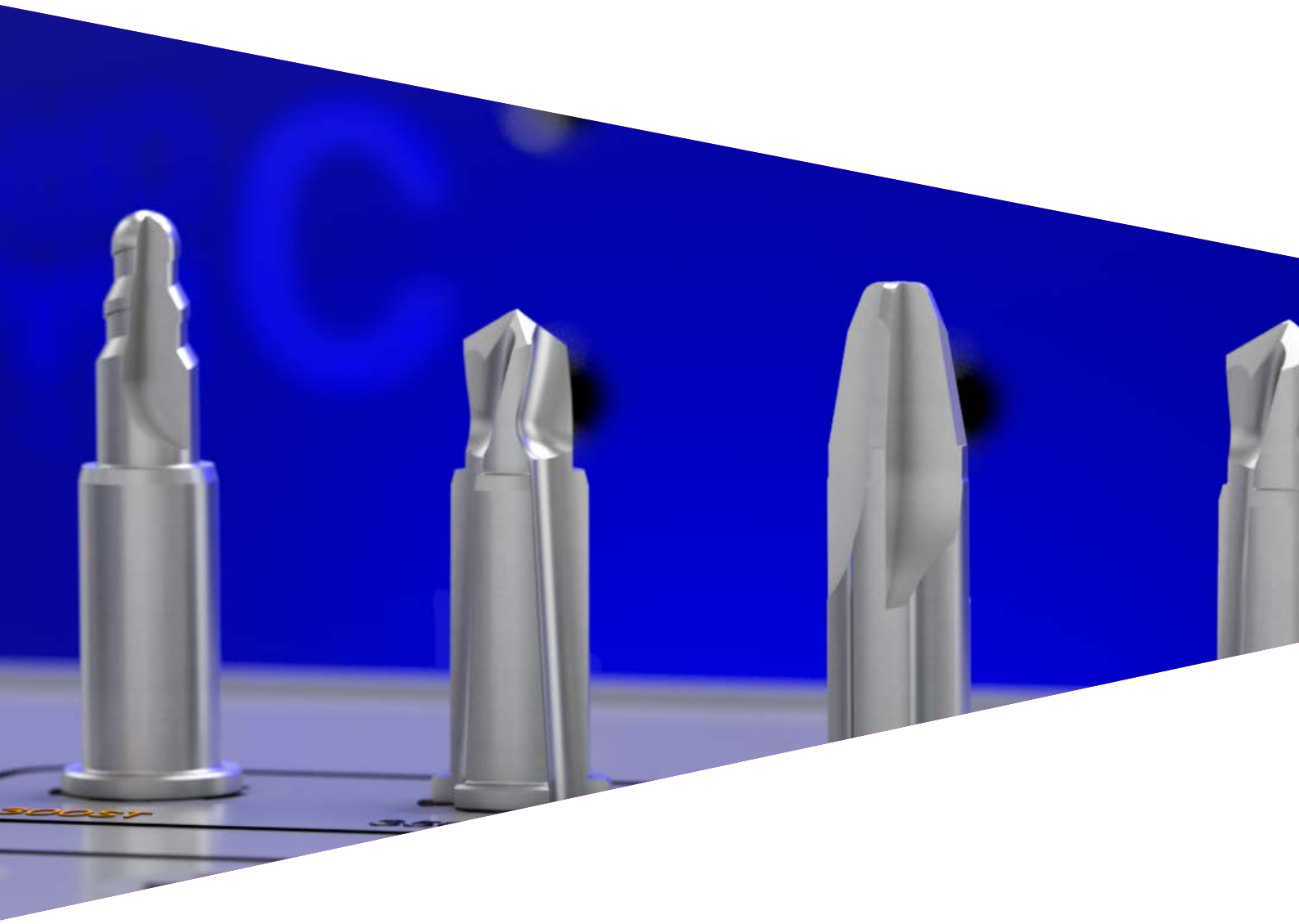
Surgical Manual

ECHOPLAN PRO C



sweden & martina

Echoplan PRO C Kits

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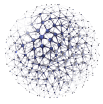


General overview 52

Clinical indications for recourse to implant prosthetic treatment

When evaluating patients, aside from considering the suitability for implant prosthetic restorations, any contraindications for dental surgery should also be taken into account. These include:

- Anticoagulant therapies and any alterations in the blood coagulation cascade
- Disorders affecting wound healing or bone regeneration
- Uncompensated diabetes mellitus
- Metabolic or systemic diseases affecting cell renewal that impair tissue regeneration, especially wound healing and bone regeneration
- Abuse of alcohol, tobacco or drugs
- Immunosuppressive therapies such as chemotherapy or radiotherapy
- Infection and inflammation such as periodontitis or gingivitis
- Poor oral hygiene
- Poor motivation
- Occlusion and/or articulation defects as well as insufficient interocclusal space
- Inadequate alveolar process

Insertion of implants and implant prostheses are contraindicated in patients with poor general health, little or inadequate oral hygiene, little or no possibility of controlling their general condition, or who have previously undergone organ transplantation. Patients who have been deemed psychologically unstable, who abuse alcohol or drugs, who show insufficient motivation or cooperation should also be considered ineligible. Patients with poor periodontal health should be treated and rehabilitated beforehand. Appropriate guided tissue regeneration is to be carried out beforehand if the recipient's bone tissue is lacking or of poor quality, such that implant stability could be compromised.

The following should also be considered contraindications: titanium allergy (rare, but documented in the international literature), acute or chronic infectious diseases, chronic subacute jawbone osteitis, systemic conditions, endocrine disorders, diseases resulting in microvascular disorders, pregnancy, breastfeeding, previous exposure to radiation, haemophilia, granulocytopenia, use of steroids, diabetes mellitus, renal insufficiency, fibrous dysplasia.
Normal contraindications common to all oral surgery should also be observed. Patients receiving anticoagulant, anticonvulsant, or immunosuppressive therapy, with active inflammatory-infective processes in the oral cavity, or patients with abnormal creatinine and BUN levels should not undergo surgery. Patients with cardiovascular disease, hypertension, thyroid or parathyroid disease, malignant tumours detected in the 5 years prior to surgery, or nodular enlargements should also be deemed ineligible.

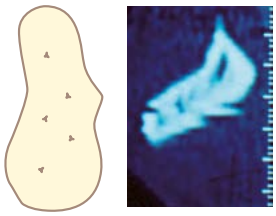
Chemotherapy reduces or nullifies the capacity for osseointegration, so patients undergoing such treatments should be carefully screened before intervening with implant-retained restorations. Numerous cases of peri-implant osteonecrosis have been reported in the literature, mainly in the mandible, when bisphosphonates were being administered. This problem has especially affected patients receiving intravenous treatment.
As a precautionary measure, patients should avoid activities requiring physical exertion after surgery.

Side effects and symptoms

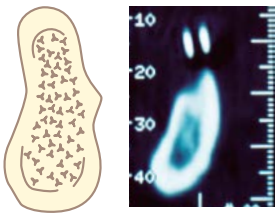
Manifestations accompanying surgery include temporary local swelling, oedema, haematoma, and local tumefaction, temporary numbness and limitations of chewing functions, as well as some post-surgical micro-bleeding within 12 to 24 hours of the procedure. Additional manifestations that may also occur include pain, minor speech impairment, gingivitis, loss of bone ridge, permanent paraesthesia, dysesthesia, local or systemic infections, exfoliation, hyperplasia, perforation of the Schneiderian membrane, oroantral and oronasal fistulas, labial or lingual plate perforation, fractures of the bone, the implant, or the superstructure, aesthetic problems, inadvertent sinus perforation, nerve damage, or impairment of the natural dentition. These pathophysiological problems may also incur increased risk: cardiovascular insufficiency, coronary artery disease, arrhythmia, chronic pulmonary or respiratory diseases, gastrointestinal diseases, hepatitis, intestinal inflammation, chronic renal insufficiency and urinary system disorders, endocrine disorders, diabetes, thyroid diseases, haematological conditions, anaemia, leukaemia, impaired coagulation, osteoporosis or musculoskeletal arthritis, heart attack, neurological disorders, mental retardation, or paralysis.

Verifying the patient's suitability for implant treatment through a careful pre-operative medical history is fundamental. The collection and filing of complete clinical, radiological and radiographic documentation should also be a part of the patient's history.

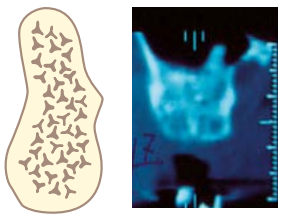
In addition to both a clinical and radiographic oral examination, it is advisable to obtain a CT scan of the area concerned. Once the radiographic and tomographic images have been secured, the reference software can aid the specialist in identifying the most suitable implant for that specific patient.
With the preoperative CT Dentalscan the bone type found at the point where the implant is to be inserted can be identified. The choice of surgical procedure cannot disregard the type of bone present. Normally, there are four types of bone that can be identified according to its density. Carl Misch bone density classification:



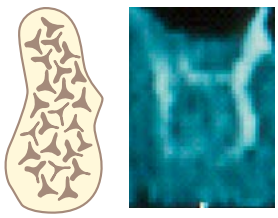
D1: dense cortical bone



D2: coarse trabecular bone core in a porous cortical shell



D3: all fine trabecular bone with no cortical crestal bone

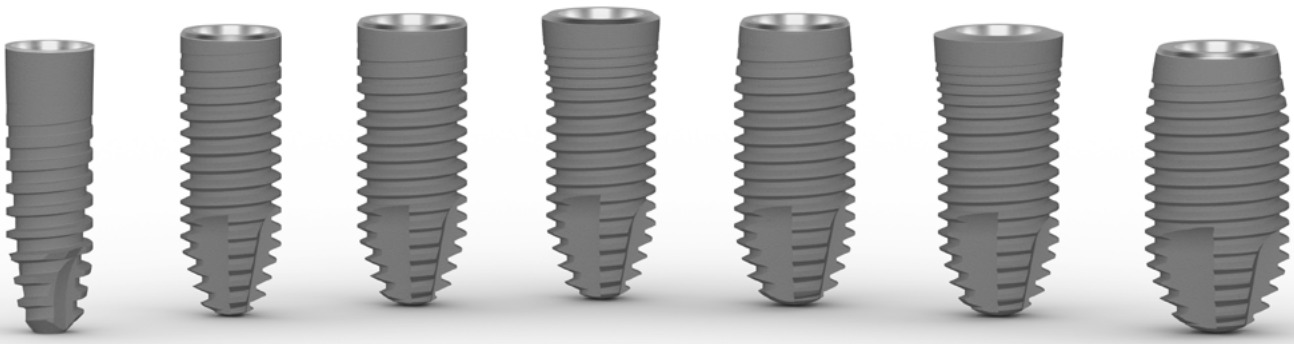


D4: all fine trabecular bone with very little mineralisation

Dentalscan images by kind permission of Dr. Marco Csonka - Catania

General overview

Guided surgery is an implant treatment technique that includes these steps: diagnosis, planning, and placement. Its main advantage is being able to plan the surgery by working with complete 3D views of the patient's radiological and prosthetic anatomy. Therefore, through the use of templates, for the surgical phase, which can guide implant placement based on the plan, the size and final position of the dental implant can be precisely assessed, also in relation to the prosthetic design (wax-up).
The Echoplan PRO C surgical kit has been designed and developed to permit the preparation of surgical sites using a guided implantology technique for CSR implants manufactured by Sweden & Martina. The Echoplan PRO C kit and the surgical instruments it contains were designed to be compatible with the application of the main guided implantology techniques (three-dimensional diagnostic software and surgical guide templates) currently available on the market. You can request the updated list from Sweden & Martina.



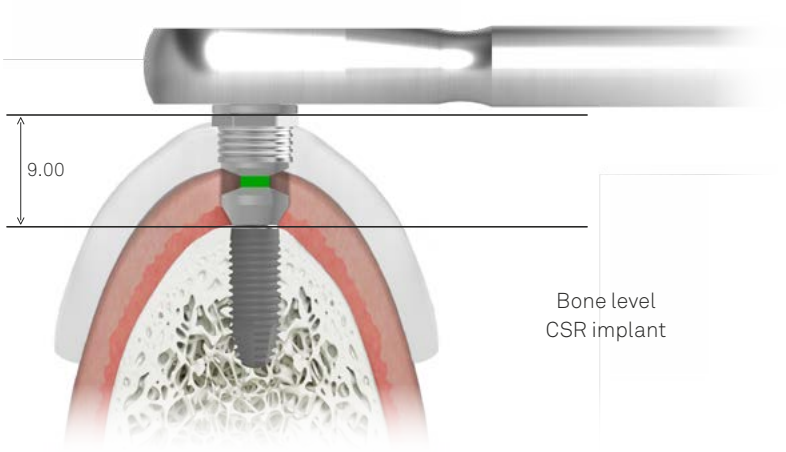
ø 3.00 mm	ø 3.50 mm	ø 3.80 mm	ø 3.80 mm	ø 4.20 mm	ø 4.20 mm	ø 5.00 mm
STRAIGHT NECK			**WIDE NECK**	**REDUCED NECK**	**WIDE NECK**	**REDUCED NECK**

ø 3.80 mm	ø 4.25 mm	ø 5.00 mm
CSR RF SL		

***Please Note**: CSR RF SL implants require the Echoplan PRO S Kit for placement and not the Echoplan PRO C Kit.. For the positioning of these implants, please refer to the Surgical Manual Echoplan PRO S.*

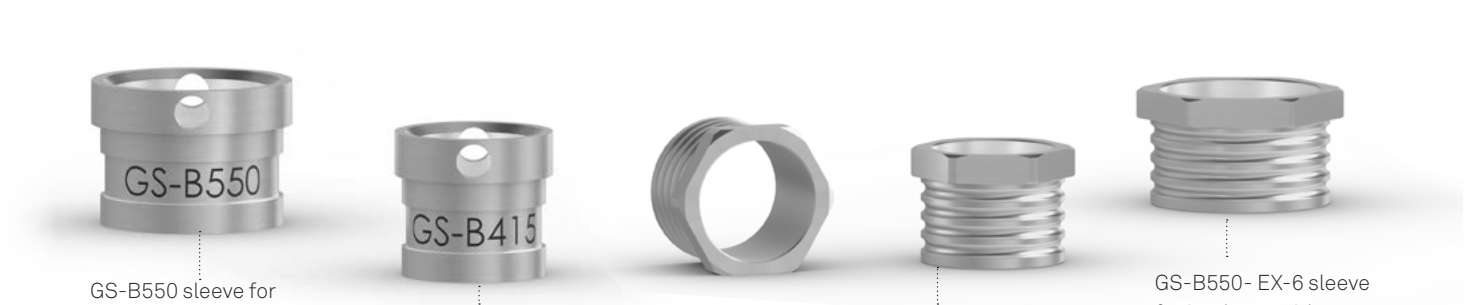
Introduction to the Echoplan PRO C System

Among the instruments involved in guided surgery there is a fixed ratio that allows for implant placement to conform with the planning. The Echoplan PRO C system was designed using the ratio of 9.00 mm between the level of the instrument stop on the sleeve, which is the metal cylinder inserted in the surgical template (and whose function is to guide the axis of insertion of the instruments whilst also determining their stop at a certain length), and the plane of the implant connection.



Guide sleeves

The guide sleeves are AISI 630 stainless steel cylinders, with diameters of 4.15 mm or 5.50 mm, which are embedded in the polymer of the surgical template. Their purpose is to guide the rotating instruments during preparation whilst maintaining the working axis programmed with the planning software and providing a certain physical stop for all instruments at 9.00 mm from the plane of the implant connection platform.
Though Sweden & Martina does manufacture a series of standard, non-indexed sleeves, available for laboratories that make surgical templates using software other than RealGUIDE, it also makes a series of indexed sleeves with an upper hexagon, which allows compliance of the positioning of the implant connection previously planned using RealGUIDE software. Because of this feature, these latter are positioned in the templates, manufactured by Sweden & Martina, using the specific software.



GS-B550 sleeve for implants with a diameter equal to or greater than 4.20 mm

GS-B415 sleeve for implants with a diameter equal to or greater than 4.10 mm

GS-B415-EX-6 sleeve for implants with a diameter equal to or less than 4.10 mm

GS-B550- EX-6 sleeve for implants with a diameter equal to or greater than 4.20 mm

Important Warnings
If the templates are fabricated using a 3D printer, flow should be used to bond the sleeves and not cyanoacrylate, which tends to oxidise them.

Easy Mounter

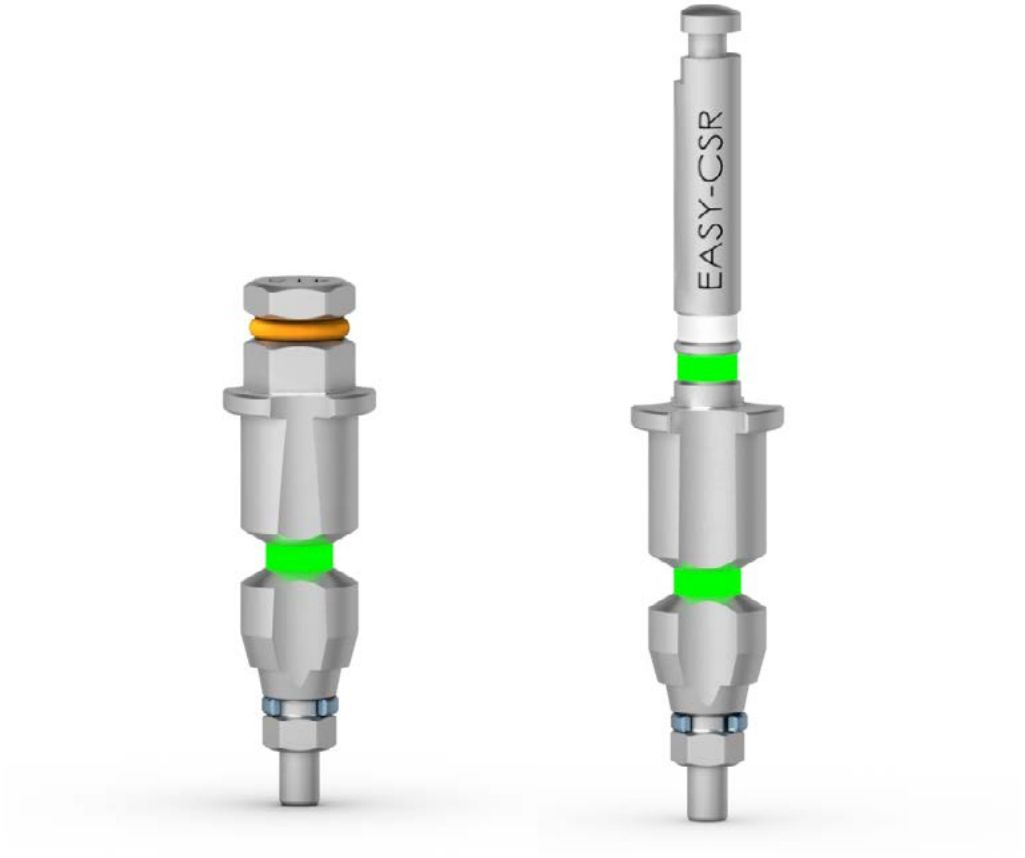
Easy Mounters are instruments, which, offering the advantage of being fast and easy to use, act as drivers and mounters without a screw to fasten the implant.

These mounters are equipped with a predetermined fracture point. This gives the clinician the confidence to extract the driver even in case of lever movements, very high torque or fracture due to incorrect use.

They are available in both contra-angle and ratchet versions.
The contra-angle version has coloured rings to identify the reference sleeve diameter. Though the ratchet version has no band, there is a laser mark on top of the upper hexagon to identify the sleeve.

Easy Mounters for CSRs with DAT-N connections are marked with bronze coloured rings, whilst CSRs with DAT connections have green rings.

Although Easy Mounters are not included in the kit, they can be purchased separately and placed in the tray in specific slots.

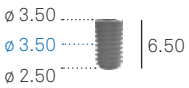
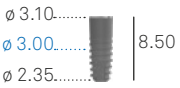
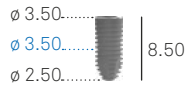
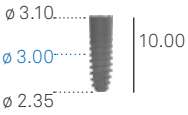
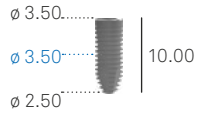
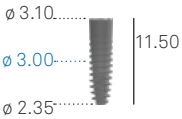
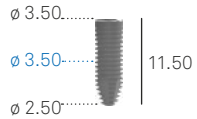
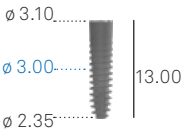
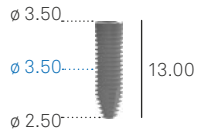
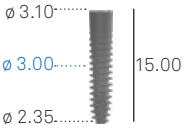
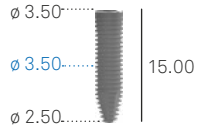
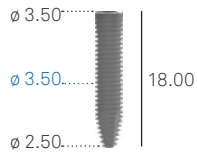


Implant	Implant ø	Sleeve		Mounter	
CSR	**3.00**	**GS-B415**	**GS-B415-EX-6***	**GS-EASY-CSR-N-415-EX**	**GS-EASY-CSR-N-415-CA**
					
	3.50	**GS-B415**	**GS-B415-EX-6***	**GS-EASY-CSR-N-415-EX**	**GS-EASY-CSR-N-415-CA**
					
	3.80	**GS-B415**	**GS-B415-EX-6***	**GS-EASY-CSR-415-EX**	**GS-EASY-CSR-415-CA**
					
	4.20	**GS-B550**	**GS-B550-EX-6***	**GS-EASY-CSR-550-EX**	**GS-EASY-CSR-550-CA**
					
	5.00	**GS-B550**	**GS-B550-EX-6***	**GS-EASY-CSR-550-EX**	**GS-EASY-CSR-550-CA**
					

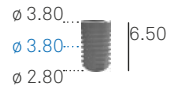
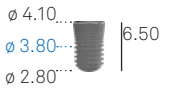
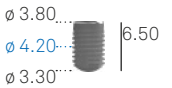
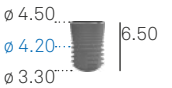
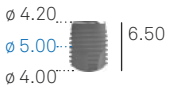
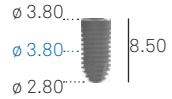
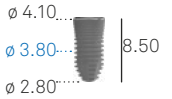
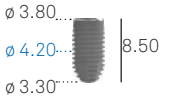
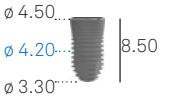
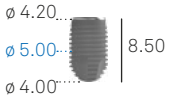
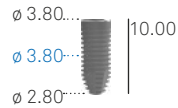
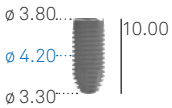
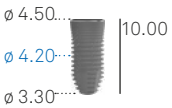
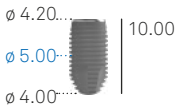
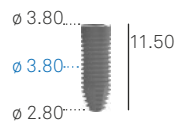
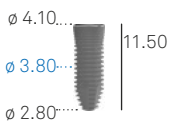
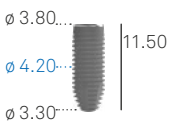
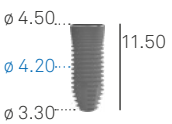
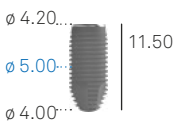
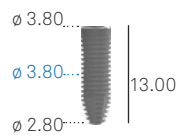
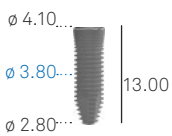
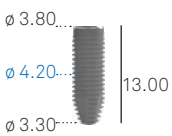
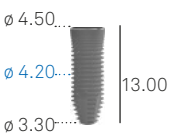
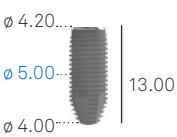
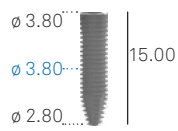
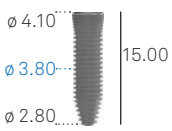
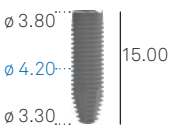
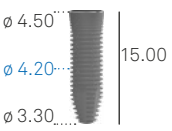
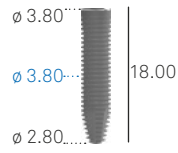
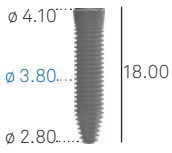
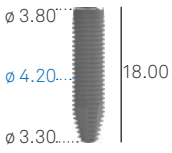
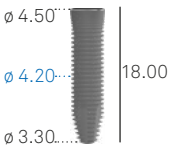
**Indexed guide sleeves are not sold individually but are available in packs of 6.*

CSR implants that can be positioned with the Echoplan Pro C kit

CSR-line implants have a cylindrical **morphology and a full treated ZirTi surface**, with a **bevel in the most coronal portion.** To meet different clinical needs CSR implants are available with **three different neck morphologies**, Wide Neck, Straight Neck and Reduced Neck.
In the table below, the implants that can be positioned with the Echoplan Pro C kit.

DAT-N connection		
ø implant	3.00 mm	3.50 mm
neck	straight	straight
h 6.50 mm	-	**VSR-ZT-350ST-065** 
h 8.50 mm	**VSR-ZT-300ST-085** 	**VSR-ZT-350ST-085** 
h 10.00 mm	**VSR-ZT-300ST-100** 	**VSR-ZT-350ST-100** 
h 11.50 mm	**VSR-ZT-300ST-115** 	**VSR-ZT-350ST-115** 
h 13.00 mm	**VSR-ZT-300ST-130** 	**VSR-ZT-350ST-130** 
h 15.00 mm	**VSR-ZT-300ST-150** 	**VSR-ZT-350ST-150** 
h 18.00 mm	-	**VSR-ZT-350ST-180** 
surgical locking screw	**VSR-VT-N** 	**VSR-VT-N** 

Each implant is sold with the respective surgical locking screw.
The surgical screws are also available individually in sterile packaging and should be tightened to 8-10 Ncm.

DAT connection					
ø implant	3.80 mm		4.20 mm		5.00 mm
neck	straight	wide	reduced neck	wide	reduced neck
h 6.50 mm	**VSR-ZT-380ST-065** 	**VSR-ZT-380-065** 	**VSR-ZT-420RN-065** 	**VSR-ZT-420-065** 	**VSR-ZT-500RN-065** 
h 8.50 mm	**VSR-ZT-380ST-085** 	**VSR-ZT-380-085** 	**VSR-ZT-420RN-085** 	**VSR-ZT-420-085** 	**VSR-ZT-500RN-085** 
h 10.00 mm	**VSR-ZT-380ST-100** 	**VSR-ZT-380-100** 	**VSR-ZT-420RN-100** 	**VSR-ZT-420-100** 	**VSR-ZT-500RN-100** 
h 11.50 mm	**VSR-ZT-380ST-115** 	**VSR-ZT-380-115** 	**VSR-ZT-420RN-115** 	**VSR-ZT-420-115** 	**VSR-ZT-500RN-115** 
h 13.00 mm	**VSR-ZT-380ST-130** 	**VSR-ZT-380-130** 	**VSR-ZT-420RN-130** 	**VSR-ZT-420-130** 	**VSR-ZT-500RN-130** 
h 15.00 mm	**VSR-ZT-380ST-150** 	**VSR-ZT-380-150** 	**VSR-ZT-420RN-150** 	**VSR-ZT-420-150** 	-
h 18.00 mm	**VSR-ZT-380ST-180** 	**VSR-ZT-380-180** 	**VSR-ZT-420RN-180** 	**VSR-ZT-420-180** 	-
surgical locking screw	**VSR-VT** 	**VSR-VT** 	**VSR-VT** 	**VSR-VT** 	**VSR-VT** 

Each implant is sold with the respective surgical locking screw.
The surgical screws are also available individually in sterile packaging and should be tightened to 8-10 Ncm.

General overview

The surgical instruments for implant systems manufactured by Sweden & Martina S.p.A. are reusable medical devices intended for use in the oral cavity, for temporary use (continuous duration not exceeding 60 minutes). The surgical instruments' functions are to prepare the implant sites, to insert the implants into the sites, to tighten and loosen all the connecting screws (surgical locking screws, transmucosal healing screws, abutment screws, prosthetic screws, transfer screws, etc.)

Surgical instruments manufactured by Sweden & Martina are intended for use with dental implants also manufactured by Sweden & Martina. The use of surgical instruments for procedures with implants other than those manufactured by Sweden & Martina limits Sweden & Martina's liability and voids the product warranty. Sweden & Martina shall bear no liability for the use of non-original instruments. Sweden & Martina surgical instruments are sold in **NON-STERILE packaging**. Before use, the instruments must be cleaned, disinfected and sterilised according to the instructions below. Lack of compliance may result in patient infection.
The materials used for the manufacture Sweden & Martina surgical instruments have been selected on the basis of the properties indicated for their intended use, in compliance with the European Regulation 2017/745.

Each package bears the product code, a description of the contents and the batch number. These same data, which can also be found on labels inside the packages, are to always be quoted by the doctor in any communications about the products.
All devices are identified by their instrument code, laser-marked on the device body. If space does not permit the complete code to be shown, the elements that allow the device to be identified unambiguously (e.g. diameter or length) are marked. When handling the devices, both during use and during cleaning and sterilisation, it is recommended that surgical gloves always be worn for individual protection against bacterial contamination. Failure to comply may result in cross infection.

Surgical instrument code key

Surgical instrument codes are so-called "talking" codes, i.e. they allow the part to be easily identified. Below is a table explaining how the talking code works, using different types of instruments as examples.

Examples	Type of component and type of implant	Diameter	Length	sleeve
Since the range of instruments is vast, below are a few examples from the main instrument families	The "GS" acronym indicates the instruments dedicated to guided surgery, designed to be conducted on the sleeves inserted in the surgical template	Normally this is the diameter measurement of the implant to be inserted using that specific instrument	This measurement is normally linked to the length of the component, or to other relevant measurements that characterise it, or it is an abbreviation that defines the preparation depth of the drill	This indicates the internal diameter of the sleeve on which the instrument will be guided
GS-F200-100-415	GS-F: drill for guided surgery	200: 2.00 mm	100: for preparation of implants h 10.00 mm	415: for sleeve with diameter 4.15 mm
GS-MUC-550	GS- MUC: mucotome for guided surgery	-	-	550: for 5.50 mm diameter sleeve
GS-FPN-148	GS-FPN: drill for insertion of pin to fix surgical template	148: 1.48 mm	-	-

Echoplan PRO C surgical kits

The Echoplan PRO C surgical kit has been designed and manufactured to offer ease of use and immediacy in the instrument sequence progression. All the instruments are made of surgical steel. Their descriptions are silk-screen printed on the tray permitting the user to easily identify each instrument and to reposition it after cleaning and sterilisation. Then, because of the colour-coded system, the right instrument can be traced to the appropriate surgical procedure based on the different implant diameters.

Important Warnings
The Echoplan PRO C kit and the surgical instruments it contains are sold in NON-STERILE packaging. Before use, the instruments must be cleaned, disinfected and sterilised according to the instructions below. Lack of compliance may result in patient infection.

The kit includes slots for drills for the preparation of short implants measuring 6.50 mm and longer implants up to 18.00 mm in length, which are available as an option

Description	Code
Grommetless surgical kit including all the instruments necessary for guided insertion of CSR implants	**ZGS-PRO-C-INT**
Empty grommetless Radel instrument case for guided surgery instruments	**GSPROC-TRAY-INT**

Important Warnings
The kit does not contain the mounters, which are to be purchased separately prior to the surgical procedure. The mounters can then be stored and organised in their own case. See page 30 for details.

SURGICAL INSTRUMENTS

1 **Mucotomes**
GS-MUC-415
GS-MUC-550

2 **Crestal levellers**
GS-LC-415
GS-LC-550

3 **Initial drills and progressive drills**
GS-F200-415
GS-F200-550
GS-F2030-550

4 **Optional drills for implants D 6.50 mm ø 3.00, 3.50 and 3.80 mm**
GS-F200-065-415
GS-F280-065-415
GS-F320-065-415

5 **Optional drills for implants D 6.50 mm ø 4.20 and 5.00 mm**
GS-F200-065-550
GS-F300-065-550
GS-F360-065-550
GS-F440-065-550

6 **Final drills for implants ø 3.00 mm**
GS-F200-085-415
GS-F200-100-415
GS-F200-115-415
GS-F200-130-415
GS-F200-150-415

7 **Final drills for implants ø 3.50 mm**
GS-F280-085-415
GS-F280-100-415
GS-F280-115-415
GS-F280-130-415
GS-F280-150-415

8 **Final drills for implants ø 3.80 mm**
GS-F320-085-415
GS-F320-100-415
GS-F320-115-415
GS-F320-130-415
GS-F320-150-415

9 **Intermediate drills for sleeve ø 5.50 mm**
GS-F200-085-550
GS-F200-100-550
GS-F200-115-550
GS-F200-130-550
GS-F200-150-550

GS-F300-085-550
GS-F300-100-550
GS-F300-115-550
GS-F300-130-550
GS-F300-150-550

10 **Final drills for implants ø 4.20 mm**
GS-F360-085-550
GS-F360-100-550
GS-F360-115-550
GS-F360-130-550
GS-F360-150-550

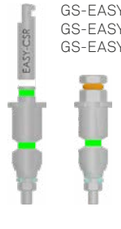
11 **Final drills for implants ø 5.00 mm**
GS-F440-085-550
GS-F440-100-550
GS-F440-115-550
GS-F440-130-550

12 **Countersink drills**
GS-FCS-C300ST
GS-FCS-C350ST
GS-FCS-C380
GS-FCS-C380ST
GS-FCS-C420

13 **Easy Mounter**

GS-EASY-CSR-N-415-EX
GS-EASY-CSR-415-EX
GS-EASY-CSR-550-EX

GS-EASY-CSR-N-415-CA
GS-EASY-CSR-415-CA
GS-EASY-CSR-550-CA



14 **Pins and pin drill**
GS-FPN-148 GS-PIN (1 pc)

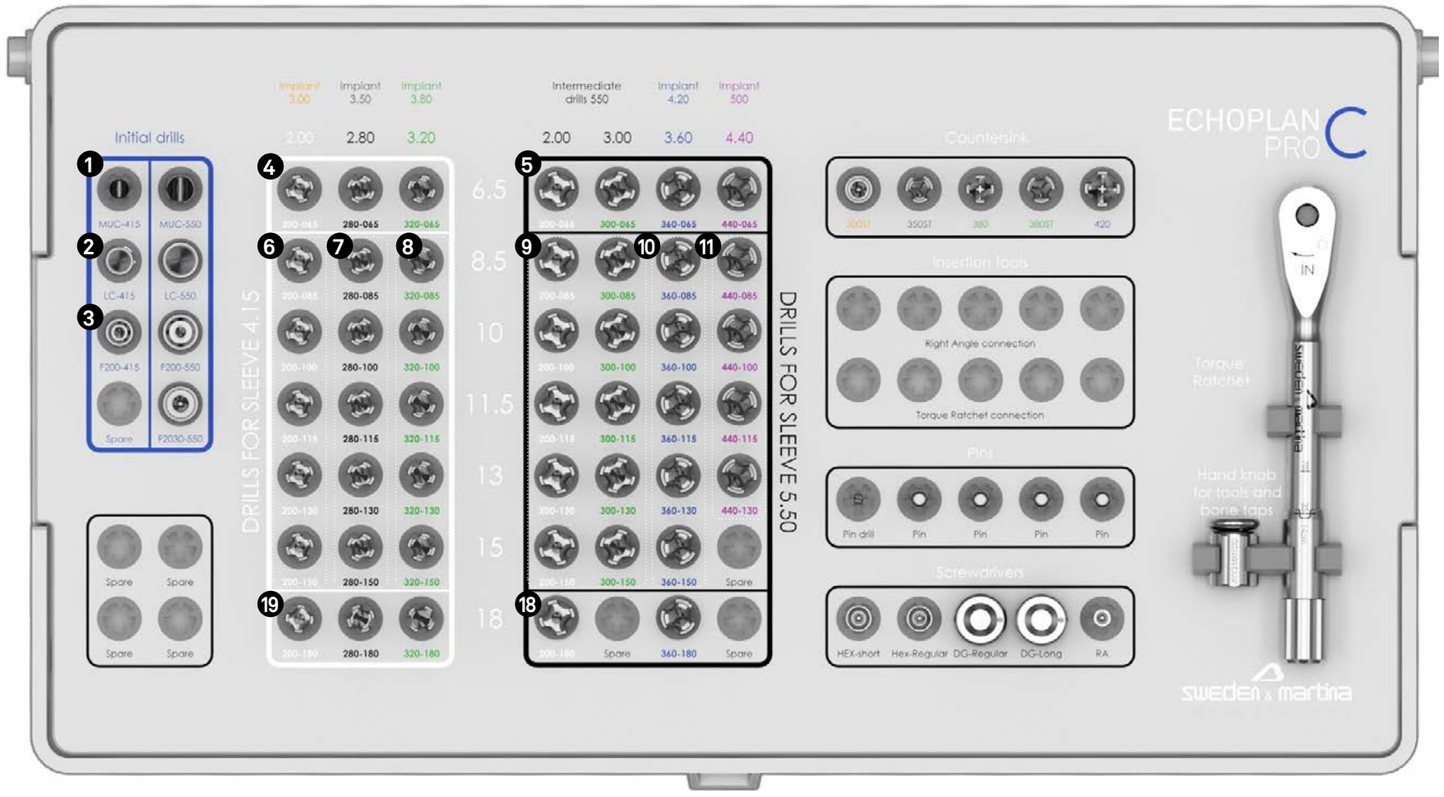
15 **Torque wrench**
CRI5-KIT

16 **Drivers**
HSM-20-EX HSML-20-EX HSM-20-DG HSML-20-DG HSM-20-CA

17 **Digital knob**
AVV3-MAN-DG

18 **Optional drills for implants D 18.00 mm ø 4.20 and 5.00 mm**
GS-F200-180-550
GS-F360-180-550

19 **Optional drills for implants D 18.00 mm ø 3.00, 3.50 and 3.80 mm**
GS-F200-180-415
GS-F280-180-415
GS-F320-180-415



Rotating instruments

All Sweden & Martina drills are made of **surgical steel**, which is **highly resistant to corrosion and wear**. They are intended for mechanical use, i.e., they have a shank with a contra-angle attachment and must be used with a suitable micromotor. The great care taken in their design and manufacture means that their operation is **absolutely free of vibrations and oscillations**. Nevertheless, any improper insertion of the tools into the handpiece can lead to instrument vibration, eccentric rotation, premature wear and bent shanks. Only surgical micromotors that are suitable for these applications should be used. To prevent any malfunctions (e.g. axis shifts of the drive shafts, worn or malfunctioning collets, etc.), it is strongly suggested that your micromotors be periodically inspected by their manufacturers, according to instructions.

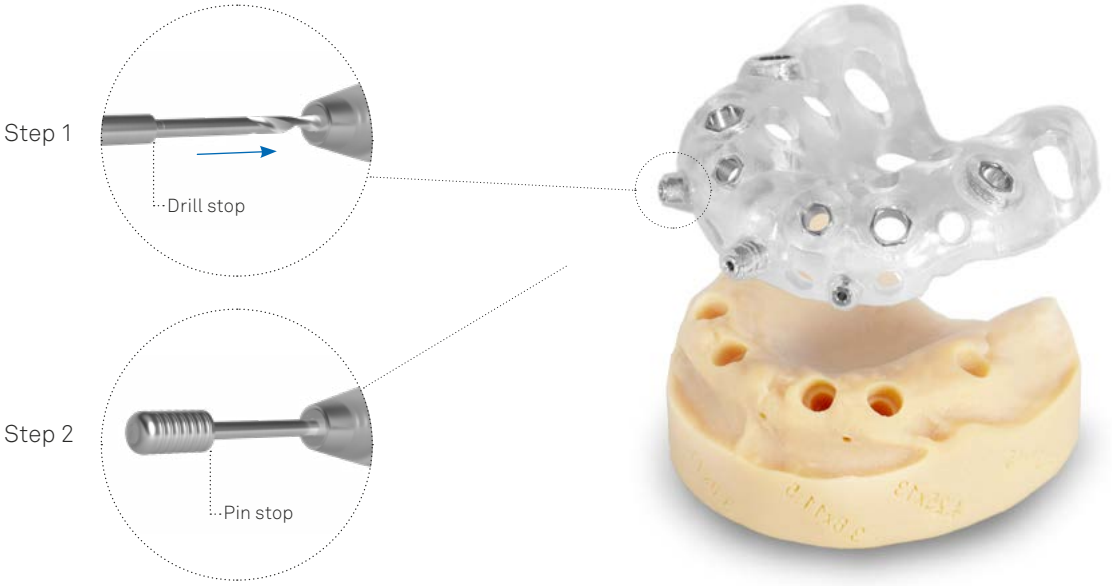
Failure to follow these guidelines could lead to surgical complications and consequent harm to patients' health. It is recommended that the rotation speeds, which are indicated in the procedures on page 37 et seq., be used to avoid the development of bone necrosis. Lever movements augment the risk of tool fracture and should therefore be avoided. In general, sudden changes in speed should be avoided. Pressure should never be applied to forcibly stop the rotation of the instrument. This could cause excessive heat to build-up in the tissues being cut, which can result in bone necrosis, and which can ruin both the tool and the drive used (micromotor). This can also lead to the tool breaking. It is also suggested that the work be performed intermittently with a vertical up-and-down movement to avoid overheating and wear of the working tool and any undue heat build-up in the tissues involved in the cut. Furthermore, an appropriate coolant should also be used. Bone necrosis may occur without adequate irrigation. Drill wear largely depends on the type and density of the bone being cut: harder bone leads to greater tool wear.
It is recommended, for greater safety and caution with respect to the wear capacity of the device, that drills be used for no more than 20 work cycles or less if the tools begin to lose their cutting capacity. The suggested 20 work cycles is an average figure. The tools' residual cutting capacity should be checked after each surgical procedure. Sweden & Martina shall bear no liability for excess usage. Drills should never be resharpened before use. Never use tools that are either damaged, bent or worn.

The drills for guided surgery have been designed to work inside the sleeves, manufactured by Sweden & Martina, which have been inserted in the surgical templates by the respective manufacturer.
Sweden & Martina shall bear no liability for any malfunctions or damage caused by the use of guided surgery drills with non-original sleeves or sleeves that do not match the dimensions of the instruments, which may seize up, may not be guided correctly or may reach a position different from what was planned by the clinician if the sleeve height is not correct.

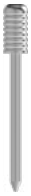
Important Warnings
The Echoplan PRO C kit and the surgical instruments it contains are sold in NON-STERILE packaging. Before use, the instruments must be cleaned, disinfected and sterilised according to the instructions below. Lack of compliance may result in patient infection.

Fastener pins and drills

When it is not possible to stabilise the surgical guide on the residual teeth, a full-thickness flap protocol should be adopted to ensure support from the bone. Since using the dental arch would still give rise to rocking, the template will need to be stabilised with bone pins, in titanium Gr 5, included in the kit. To drill the hole for the pins, the corresponding GS-FPN-148 drill has been supplied, to be used at 800 rpm.
The pins are guided in dedicated sleeves, which have been supplied fully inserted in the template by Sweden & Martina at no extra cost with respect to the list price. If the templates are to be made in the laboratory, the sleeves, which are not sold individually, can be purchased separately in packs of 6.



Important Warning
To correctly stabilise the template, it is essential that both the drills and the pins are brought to the stop.

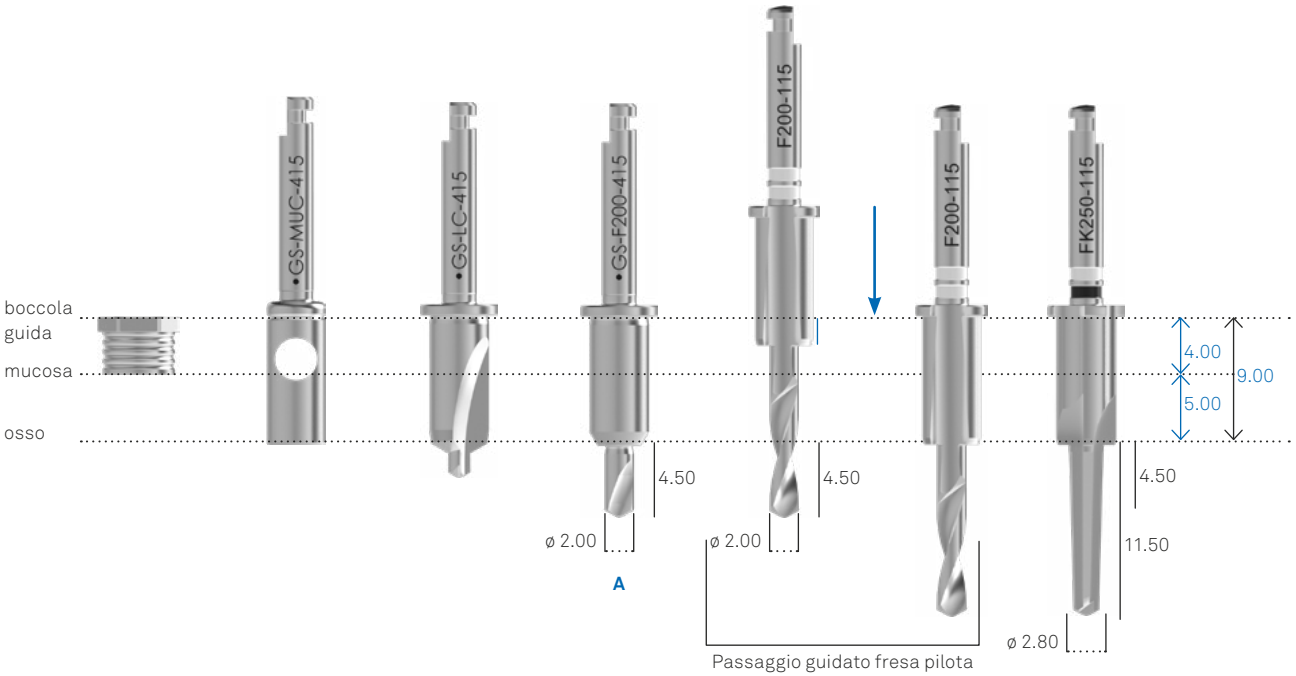
Description	Code
Drill for fixing pin	**GS-FPN-148** 
Fixing pin Pack of 1 piece	**GS-PIN** 
Sleeve for pins Pack of 6 pieces	**GS-B150-PIN-6** 

Echoplan guided surgery phases: from planning to implant insertion

Thanks to the potential of 3D simulations, the doctor will be able to define the precise diameter and depth of the implant to be inserted using one of the many software packages available on the market. Proper positioning depends on the operator's clinical experience and the precision of the software selected. The Echoplan PRO C kit can be used with all software that respects a 9.00 mm fixed stop distance from the implant platform for the instruments.

The choice of the guide sleeve to be inserted in the template, which is dependent on the diameter of the implant chosen, will be made by the template manufacturer. See page 8 for information on the guide sleeves manufactured by Sweden & Martina for the production of surgical guide templates.
Once the pertinent sleeve diameter has been identified, the surgical site can be prepared using the surgical instrumentation that matches with the sleeve diameter, which is contained in the Echoplan PRO C kit.

Preparation must **necessarily** begin with the use of three surgical accessories found in the kit, namely: the mucotome, the crestal leveller and the initial drill. Because of the shape of the drill, this latter tool makes it possible to drill a ø 2.00 mm diameter hole with a depth of 4.50 mm (A). This means that the final drills that will be used later will be guided from the very first millimetres both by the tip (for the first 4.50 mm from the hole drilled by the initial drill) and by the guide sleeve. The drawing below will help to visually comprehend the significance of the three initial steps.
All three tools are included in the kit in both the ø 4.15 mm and the ø 5.50 mm versions.



Surgical instruments for the initial phase

Clicca sul disegno per tornare alla pagina del kit

Mucotomes GS-MUC-415 and GS-MUC-550

The kit contains two mucotomes, one for each sleeve diameter. Since they only have to core the mucosa and are used in the first surgical step, they have no predetermined stop. The mucotomes have an indented notch at 9.00 mm, as a visual reference. The two mucotomes create a modest over-preparation of the mucosa to avoid direct contact with the drills.

Description	For ø 4.15 mm sleeve	For ø 5.50 mm sleeve
Mucotomes for guided surgery	**GS-MUC-415** 	**GS-MUC-550** 

Crestal bone levellers GS-LC-415 and GS-LC-550

The crestal levellers have a dual function. They drill a very shallow hole that will guide the tip of subsequent instruments whilst also eliminating any irregularities in the bone crest. This is precisely why there is a cutting edge on the oblique profile at the tip of the part that is guided by the sleeve.

Description	For ø 4.15 mm sleeve	For ø 5.50 mm sleeve
Crestal levellers for guided surgery	**GS-LC-415** 	**GS-LC-550** 

Clicca sul disegno per tornare alla pagina del kit

Initial drills GS-F200-415 and GS-F200-550

The third obligatory step has two initial drills, one for each sleeve diameter, which must always be used independently of the implant system.
The initial drills drill a 4.50 mm deep hole. This way, the subsequent drills can be twice guided, both at the tip, since they fit into the already drilled starter hole, and by the stop, which is guided into the sleeve at the highest drill position.

Description	For ø 4.15 mm sleeve	For ø 5.50 mm sleeve
Mucotomes for guided surgery	**GS-F200-415** 	**GS-F200-550** 

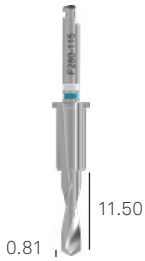
Progressive drill GS-F2030-550

To aid in the transition to larger diameters, a progressive drill is available, which widens the preparation hole from ø 2.00 mm to ø 3.00 mm, so that
ø 3.00 mm intermediate drills for a 5.50 mm diameter sleeve can be guided into it. This drill should be used after the ø 2.00 mm intermediate drill. For the correct application sequence of the progressive drill, see the sequences on page 37.

Description	For ø 5.50 mm sleeve
Progressive drills ø 2.00 - 3.00 mm	**GS-F2030-550** 

Drills included in the Echoplan PRO C kit

Clicca sul disegno per tornare alla pagina del kit

Description	for ø 4.15 mm sleeve		for ø 5.50 mm sleeve	
Drills for the preparation of implants H 8.50 mm	**GS-F200-085-415** 	**GS-F280-085-415** 	**GS-F200-085-550** 	**GS-F300-085-550** 
Drills for the preparation of implants H 10.00 mm	**GS-F200-100-415** 	**GS-F280-100-415** 	**GS-F200-100-550** 	**GS-F300-100-550** 
Drills for the preparation of implants H 11.50 mm	**GS-F200-115-415** 	**GS-F280-115-415** 	**GS-F200-115-550** 	**GS-F300-115-550** 
Drills for the preparation of implants H 13.00 mm	**GS-F200-130-415** 	**GS-F280-130-415** 	**GS-F200-130-550** 	**GS-F300-130-550** 
Drills for the preparation of implants H 15.00 mm	**GS-F200-150-415** 	**GS-F280-150-415** 	**GS-F200-150-550** 	**GS-F300-150-550** 

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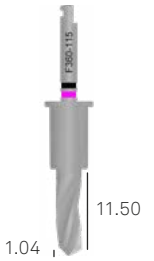
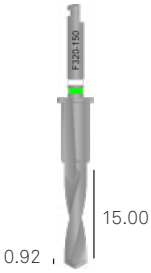
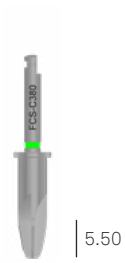
Final drills

Description	ø 3.80 mm	ø 4.20 mm	ø 5.00 mm
Final drills for implants H 8.50 mm	**GS-F320-085-415** 	**GS-F360-085-550** 	**GS-F440-085-550** 
Final drills for implants H 10.00 mm	**GS-F320-100-415** 	**GS-F360-100-550** 	**GS-F440-100-550** 
Final drills for implants H 11.50 mm	**GS-F320-115-415** 	**GS-F360-115-550** 	**GS-F440-115-550** 
Final drills for implants H 13.00 mm	**GS-F320-130-415** 	**GS-F360-130-550** 	**GS-F440-130-550** 
Final drills for implants H 15.00 mm	**GS-F320-150-415** 	**GS-F360-150-550** 	-

Clicca sul disegno per tornare alla pagina del kit

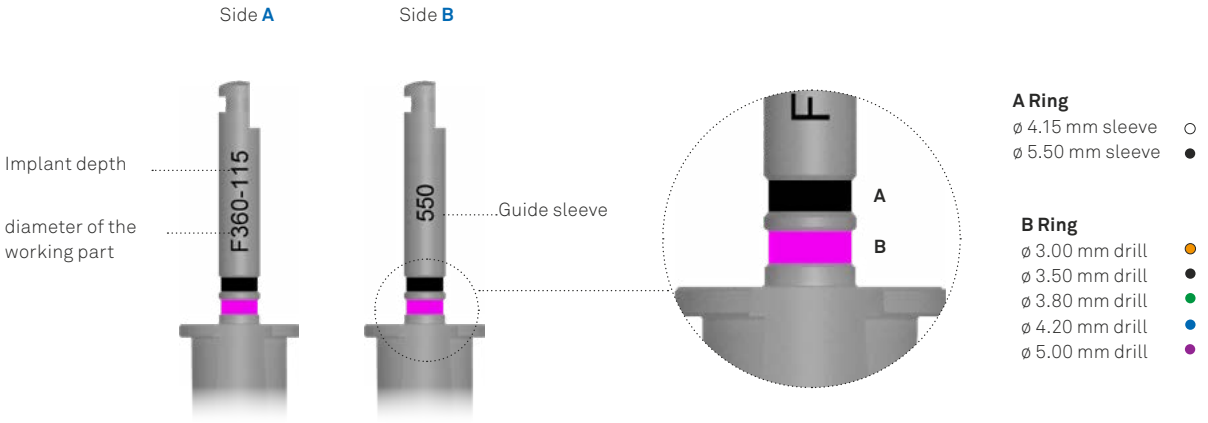
Countersink drills

Description	ø 3.00ST mm
Countersink drill ø 3.00ST mm	**GS-FCS-C300ST** 
Countersink drill ø 3.50ST mm	**GS-FCS-C350ST** 
Countersink drill ø 3.80 mm	**GS-FCS-C380** 
Countersink drill ø 3.80ST mm	**GS-FCS-C380ST** 
Countersink drill ø 4.20 mm	**GS-FCS-C420** 

Intermediate and final drills

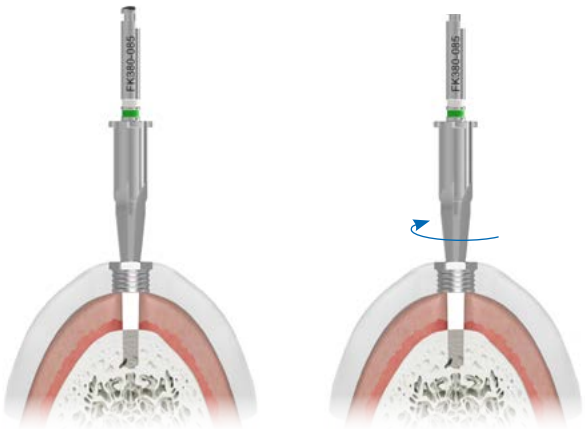
Clicca sul disegno per tornare alla pagina del kit

Each final drill has two indications on its shank. On one side there is a code consisting of the diameter and depth of the corresponding implant (Side **A**). On the other side there is the diameter of the sleeve with which it is to be used (Side **B**).
The image below shows an example of the drill with the code GS-F360-115-550. The first part identifies the width of the preparation, i.e. the diameter of the working part of the 360 mm drill, which is used as the final drill for a 4.20 mm diameter implant, whilst the second part indicates the length of the implant, which is 11.50 mm.
The drills also feature a double coloured ring at the base of the shank. This colour code identifies the diameter of the sleeve with the upper band (Ring **A**), where white is for the ø 4.15 mm sleeve and black for the ø 5.50 mm sleeve, whilst the lower band shows the diameter of the cutting edge which, in the case of final drills, refers to the colour of the sticker on the fixture packaging (Ring **B**).



To ensure the utmost precision, it is strongly suggested that the implant site be thoroughly irrigated with sterile saline solution (NaCl) during and after the preparation to aid the removal of bone residue that might obstruct the correct function of the instruments. Irrigation will also help to prevent overheating of the drills and consequently of the surrounding tissues. The intermittent drilling technique can also be useful to facilitate the flushing by the fluid.

Before each procedure, make sure that all drills are in good condition. Replace them as needed.

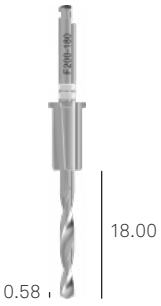
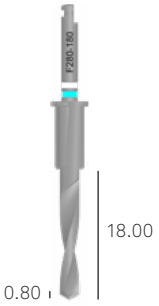
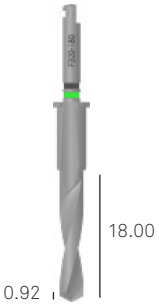
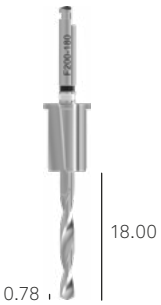
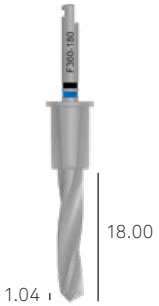


Optional drills for 6.50 mm height

The surgical kit contains all the instruments for inserting implants between 8.50 mm and 15.00 mm in length. However, there are also slots for optional drills used for preparing sites with a length of 6.50 mm.
The drill for soft bone can always be used in an intermediate step for the preparation of hard bone. See page 46 for instructions on the use of drills for sub-preparation or preparation of the diameter.
Optional drills can be purchased individually or in sets covering all implant diameters for each of the depths.

Matching sleeves	ø 4.15 mm	ø 4.15 mm	ø 4.15 mm	
		Drill for soft bone preparation	Drill for hard bone preparation	
Optional drills for implants H 6.50 mm ø 3.00, 3.50 and 3.80 mm	**GS-F200-065-415**  	**GS-F280-065-415**  	**GS-F320-065-415**  	
	ø 5.50 mm	ø 5.50 mm	ø 5.50 mm	ø 5.50 mm
Optional drills for implants H 6.50 mm ø 4.20 and 5.00 mm	**GS-F200-065-550**  	**GS-F300-065-550**  	**GS-F360-065-550**  	**GS-F440-065-550** 

Optional drills for 18.00 mm height

Matching sleeves	ø 4.15 mm		
Drills for preparation of implants H 18.00 mm ø 3.00 mm 3.50 mm and 3.80 mm	**GS-F200-180-415** 	**GS-F280-180-415** 	**GS-F320-180-415** 
Drills for preparation of implants H 18.00 mm ø 4.20 mm and 5.00 mm	**GS-F200-180-550** 	**GS-F360-180-550** 	

***NB**: drills for preparing implants with a depth of 18.00 mm can only be purchased individually.*

Neck drills

Clicca sul disegno per tornare alla pagina del kit

The kit contains countersink drills that allow the recess for CSR implant neck to be prepared even in the presence of very dense cortical bone. Countersink drills have different morphologies depending on the diameters and types of neck to be prepared. Each drill should only be used with the matching implant indicated in the table.

Description	ø 3.00	ø3.50	ø 3.80	ø 3.80ST	Ø 4.20
Neck drills for CSR implants	**GS-FCS-C300ST**  7.50	**GS-FCS-C350ST**  0.92 4.70	**GS-FCS-C380**  5.50	**GS-FCS-C380ST**  1.04 4.70	**GS-FCS-C420**  6.50

Important Warning
Even in highly mineralised bone, it is recommended that the neck drill NOT be used to prepare implants with a depth of 6.00 mm.

Screwdrivers

Clicca sul disegno per tornare alla pagina del kit

The surgical kit contains several screwdrivers, useful for tightening and loosening mounter screws, transmucosal healing screws, transfer screws, abutment screws and post screws. They are all made of stainless steel for surgical use. The tip design of all screwdrivers is the same, so they are all interchangeable. They differ from each other in their overall length and the fact that they are manual and one-piece, i.e. they are attached to a handle that allows it to be gripped, or they have a hexagonal connection compatible with the ratchet handle.
One-piece screwdrivers are available in the kit in two different lengths.

Description	Code
Short manual screwdriver also for surgical screws for CSR implants	**HSM-20-DG** 
Short manual screwdriver also for surgical screws for CSR implants	**HSML-20-DG** 

Important Warning
It is recommended that a safety lanyard be passed through the hole in the top of the knob.

Important Warning
Lever movements should be avoided as they increase the risk of fracture. Before tightening, make sure that the hexagonal screwdriver tip is correctly inserted into the hexagonal socket of the screws to be tightened. Poor insertion may lead to stripping the screwdriver's hexagonal head or the screw's hexagonal socket.
The screwdrivers have a slightly conical profile, which ensures the friction of the hexagon at the tip of the screwdriver inside the hexagon in the screw head sockets, so that it can remain in the mouth safely.
It is recommended that screwdrivers be replaced periodically in order to reduce the risk of hexagon wear.

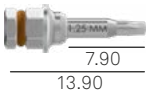
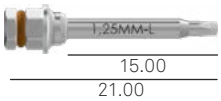
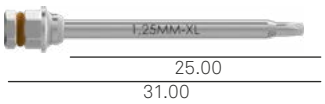
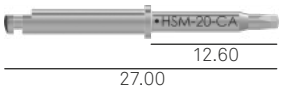
Important Warning
Excessive torque may strip the wells of the locking screws and/or round off the corners of the screwdriver tips, causing severe intraoperative or prosthetic complications. Listed in the table below are the recommended torque settings for tightening the different components:

Description	Recommended torque
surgical locking screws, transmucosal healing screws	(manually) 8-10 Ncm
all prosthetic screws	20-25 Ncm
all prosthetic components directly screwed down onto the implant	25-30 Ncm
transfer screws	(manually) 8-10 Ncm

Clicca sul disegno per tornare alla pagina del kit

Prosthetic screwdrivers

To help engage the screw threads or the threaded portions of the prosthetic components, the process can be begun with the manual screwdrivers. Nevertheless, given the importance of the tightening torque, it is advisable that this phase always be completed using the hexagonal connection screwdrivers, keeping the torque exerted by the ratchet handle under control.

Description	Code
Short screwdriver for tightening screws, with extension for ratchet torque wrench or manually	**HSM-20-EX** 
Long screwdrivers for tightening screws, with extension for ratchet torque wrench or manually	**HSML-20-EX** 
Extra-long screwdrivers for tightening screws, with extension for ratchet torque wrench or manually*	**HSMXL-20-EX** 
Long screwdrivers for tightening screws, with contra-angle extension	**HSM-20-CA** 

**Optional tool not included in the surgical kit, but that can be purchased separately.*

Important Warning
All ratchet screwdrivers have a red polymer O-ring in the hexagonal connection that guarantees friction between the instruments and therefore that the components are properly tightened. This O-ring should be checked periodically and replaced when worn and no longer able to exert correct friction. A kit of 5 spare O-rings is available and can be ordered using code **ORING180-088.**

Digital knob

Description	Code
Manual knob for tappers, mounters, screwdrivers, hex screws and manual screwdrivers	**AVV3-MAN-DG** 

Mounter Organizer GSMOUNT-TRAY-INT

The Mounter Organizer is an autoclavable Radel tray designed to organize, sterilize and store guided surgery mounters. In the upper half there are two areas each with 20 slots to divide the instruments according to the size of the sleeve they are to be used with. There is a removable surgical steel tray for storing used instrument holders after removal in the centre of the tray. In the lower half of the tray there is a retainer for the manual handpiece, 4 slots for hexagonal and contra-angle instruments, and 7 secured slots for implant vials that aid the assembly of the mounter to the fixture.

Important Warning
The Mounter Organizer tray is sold empty, and does not include any tools. The surgical steel tray should be removed for cleaning and can be reassembled before being sterilised.

Clicca sul disegno per tornare alla pagina del kit

A comparison of the control lever TWL and CRI5-KIT

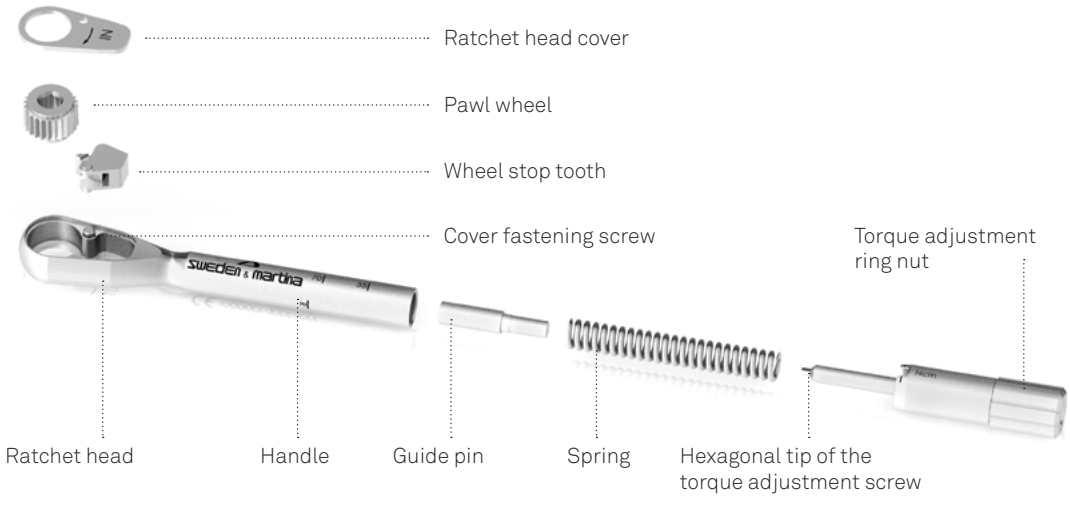
The surgical kit includes a special torque wrench with control lever (TWL). The torque wrench can be used to indicate the torque applied during the surgical phases of screwing and unscrewing, showing values from 10 to 90 Ncm. It is supplied complete with a specific adaptor that allows it to be used with surgical instruments with a hexagonal connection.

The torque wrench can also be used as a fixed key, without using the scale, by using the entire handle as a lever. In this case, it must not exceed the torque value of 150 Ncm.

On the other hand, it is not possible to use this torque wrench, which is why the CRI5-KIT torque ratchet is recommended for the temporary, laboratory and final stages of rehabilitation.

The torque ratchet is not included in the surgical kit but can be ordered separately (using the code **CRI5-KIT**) and is supplied with the torque adjustment and maintenance instruments.

For the use of the CRI5-KIT in the tightening of the fixation and prosthetic screws, please refer to the torque values on page 20 and in the sequence of use. The ratchet key CRI5-KIT is a multi-purpose instrument that can be disassembled, and is sold non-sterile.



Before each use, this instrument must be cleaned and sterilized according to the instructions on page 52. Adequate maintenance, carried out by scrupulously following all the steps indicated for dismantling and reassembly of the torque wrench during cleaning operations is essential for its correct use and to prolong its shelf life. Personnel who use this tool must be suitably trained, and they must have read the instructions in this manual prior to handling the device.

After sterilisation, the key is ready for use. The instrument must be tested for correct assembly and correct funcionality every time it is used, whether for surgical and prosthetic procedures.
The torque is adjusted by aligning the marking of the desired torque in the circular opening of the handle. The “IN” arrow legible on the top of the head indicates the screwing position of the key. The “OUT” arrow legible on the top of the head indicates the loosening or unscrewing position. An unlimited torque position is obtained by positioning the torque adjustment device up to the line marked “R” on the handle of the ratchet body.

The ring nut may be screwed and unscrewed by hand, but to speed up these operations the kit also contains a driver that allows it to be turned quickly. Any deterioration of the screwing, insertion and torque mechanisms must be checked by personnel responsible for the use and maintenance of this dental instrument.
The pieces of this mechanism are not interchangeable; one piece from one key cannot be replaced by a piece from another key as each ratchet is calibrated INDIVIDUALLY. If a piece is lost, please return the instrument to Sweden & Martina for repair. No components for assembling the ratchet can be sold individually. Failure to follow the instructions provided may cause problems of maintenance and stability of the prosthesis.

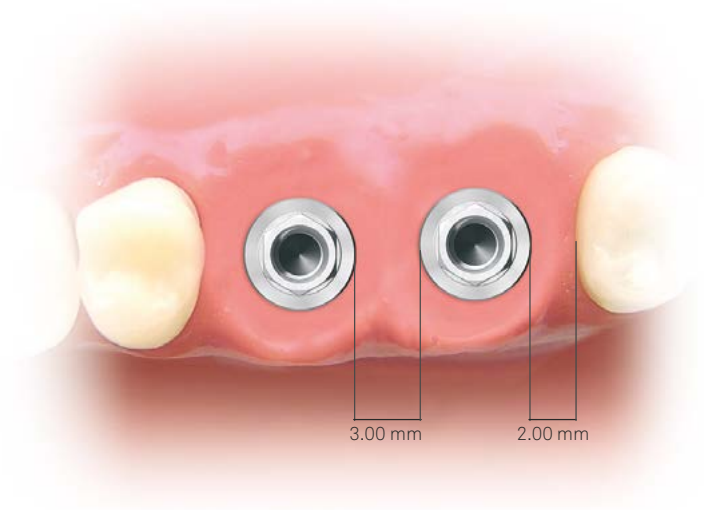
Important warning
Torque is always adjusted by screwing in/unscrewing the sleeve at the end of the instrument handle.
Torque must always be adjusted upwards, starting from a value lower than that required and tightening the adjustment sleeve in a clockwise direction until the desired value is reached. This means that if a torque value lower than that used previously is to be set, the adjustment sleeve must be slackened by two whole turns beneath the new torque value required, and then tightened again in a clockwise direction to the desired value.

In order to set a torque value, turn the ring nut in the clockwise direction until the wanted value.

To turn down a torque value of work of the ratchet, first it is necessary to unscrew the ring nut in the anticlockwise senzo until reaching a value inferior of the wanted one, then proceed with the clockwise direction screwing until the chosen torque.

Implant site preparation

During software-assisted planning, consider that normally, a distance of 3.00 mm ought to be maintained between the implant perimeters, and at least 2.00 mm between implants and any adjacent natural teeth. Many clinical trials and studies conducted have indicated that to achieve better aesthetic results, it is advisable to insert the implants in a more lingual or palatal position because this positioning helps to preserve the level of hard and soft tissues coronal to the implant. It is also essential to ensure that the residual bone wall thickness at the buccal level is no less than 1.00 mm. The best aesthetic results are obtained with buccal wall thicknesses not less than 2.00 mm. With lesser thicknesses there is a high risk of bone resorption and exposure of the coils.



Suitable preparation sequences for CSR implants are outlined on the following pages. These procedures are based on clinical experience and indications from many clinical studies and protocols for implants with this endosseous morphology. However, one must always keep in mind that different bone densities require different surgical approaches. Hence, the following indications cannot and are not intended to replace necessary training and knowledge or personal experience of clinicians, which may sometimes suggest different indications.
The following sequences are nevertheless for specific bone types.

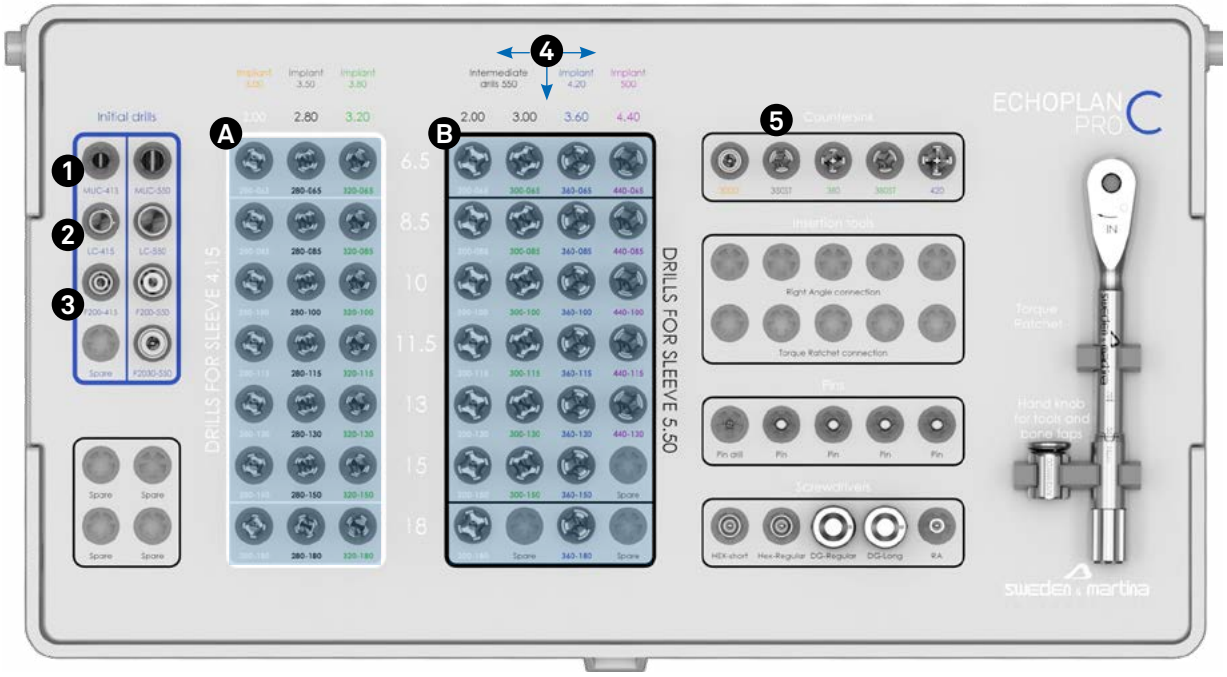
Please recall that standard drills always prepare a hole that is longer than the implant.
See page 21 et seq. for over-preparation dimensions. Preparations should be atraumatic and performed as gradually as possible with rapidity and precision. No bone overheating should be generated.

Also remember to initially adjust the surgical micromotor with the correct torque, reduction and rotation settings according to the operation to be performed. In particular:

- **Drills** are to be used at the speed indicated in the individual sequences, with maximum torque and abundant irrigation with cold sterile saline solution, better if cooled in the refrigerator.
- **Tappers** should be used only when indicated in the individual procedures.

Any improper insertion of the tools into the handpiece can lead to instrument vibration, eccentric rotation, premature wear and bent shanks. Only surgical micromotors that are suitable for these applications should be used. To prevent any malfunctions (e.g. axis shifts of drive shafts, worn or malfunctioning collets, etc.), it is strongly suggested that your micromotors be periodically inspected by their manufacturers, according to instructions. Failure to follow the guidelines provided could lead to surgical problems and consequent harm to patients' health.

(**1**) Mucotome
(**2**) Crestal leveller
(**3**) Initial drill relative to the sleeve present on the template, after which it is sufficient to identify the diameter and depth of the implant to be inserted on the surgical tray (**4**) and to use the 4 drills of the corresponding row in the white field for ø 4.15 mm sleeves (**A**) or the black field for ø 5.50 mm sleeves (**B**). To complete the preparation, use the countersink drills (**5**) if necessary.



Precisely these sequences are presented in the following pages. They have been divided by sleeve and by diameter, **taking as an example the insertion of an implant at a depth of 11.50 mm (A-B)**. For all other depths it is sufficient to change the field codes shown to black by replacing it with the desired depth to obtain the correct sequence for the insertion of each implant length.

Surgical sequences – Introduction

The first steps toward the insertion of any implant involve using the following instruments in the order indicated:

A. Mucotome
(Using the mucotome becomes mandatory only in the case of flapless surgery)

B. Crestal leveller

C. Initial drill

These first three steps must always be accomplished before using any other drills. Otherwise proper guidance of the final drills cannot be ensured.

Important Warning
The steps described below must always be completed before using final and/or intermediate drills. They should NEVER be skipped. The use of one less surgical instrument could jeopardise the success of the procedure, because the correct guidance of the final drills will not be guaranteed.
Sweden & Martina does not recommend the use of drills on D4 type bone.

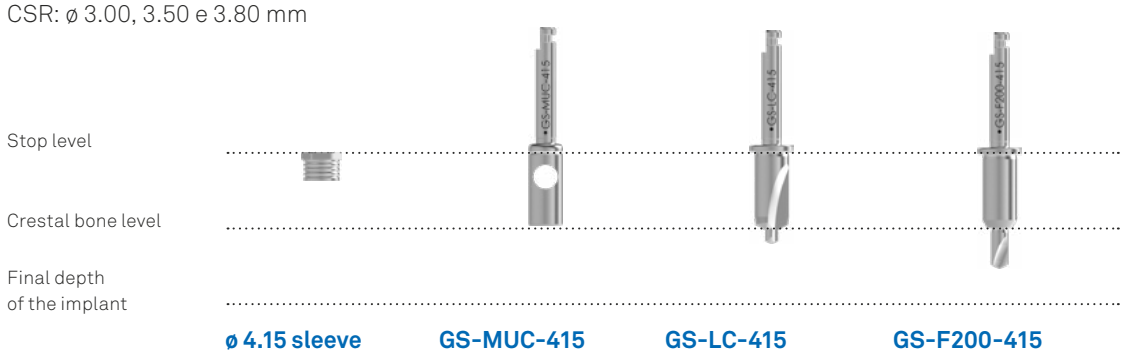
The next sequences are for specific bone types.
However, one must always keep in mind that different bone densities require different surgical approaches. Hence, the following indications cannot and are not intended to replace necessary training and knowledge or personal experience of clinicians, which may sometimes suggest different indications.
Rotation speeds should be maintained as recommended.

In D4 quality bone, the use of rotary instruments is not recommended for either traditional or guided surgery. So that as much bone as possible can be preserved, it would be preferable to use osteotomes and/or bone compactors (see all instruments available in the MC-IMP-PREMIUM-ONE and MC-IMP-PRAMA manuals, which can be downloaded from the Sweden & Martina website).
In this case, only the obligatory phase can be guided, until the initial drill is used, which will act as an introduction for the osteotomes, which, not having integrated stops, must be used according to traditional surgical protocols, i.e. by removing the surgical template.

Preliminary surgical sequences

OBLIGATORY preliminary sequence for the insertion of CSR implants with the Echoplan PRO C kit, dedicated to guided implantology, in the case of a ø 4.15 mm sleeve

Valid for these implants:
CSR: ø 3.00, 3.50 e 3.80 mm

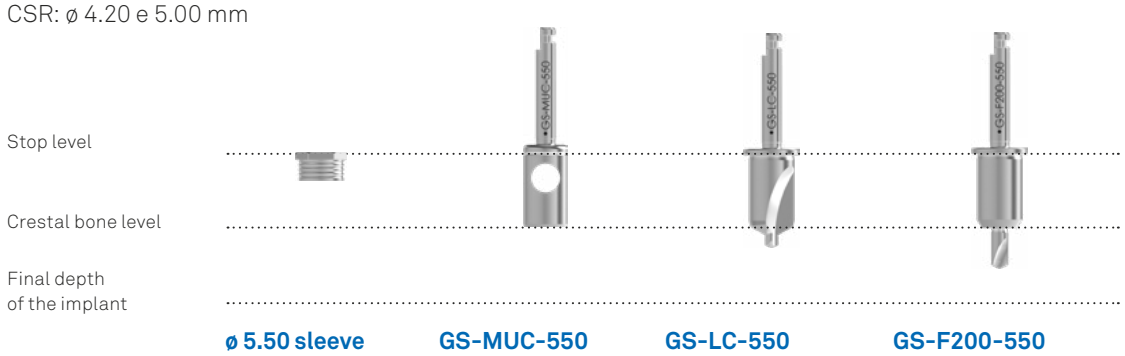


ø 4.15 sleeve **GS-MUC-415** **GS-LC-415** **GS-F200-415**

	work up to contact with bone	integrated stop	integrated stop
D1 BONE	800 rpm	800 rpm	800 rpm
D2 BONE	800 rpm	800 rpm	800 rpm
D3 BONE	800 rpm	800 rpm	800 rpm
D4 BONE	-	-	-

OBLIGATORY preliminary sequence for the insertion of CSR implants with the Echoplan PRO C kit, dedicated to guided implantology, in the case of a ø 5.50 mm sleeve

Valid for these implants:
CSR: ø 4.20 e 5.00 mm



ø 5.50 sleeve **GS-MUC-550** **GS-LC-550** **GS-F200-550**

	work up to contact with bone	integrated stop	integrated stop
D1 BONE	800 rpm	800 rpm	800 rpm
D2 BONE	800 rpm	800 rpm	800 rpm
D3 BONE	800 rpm	800 rpm	800 rpm
D4 BONE	-	-	-

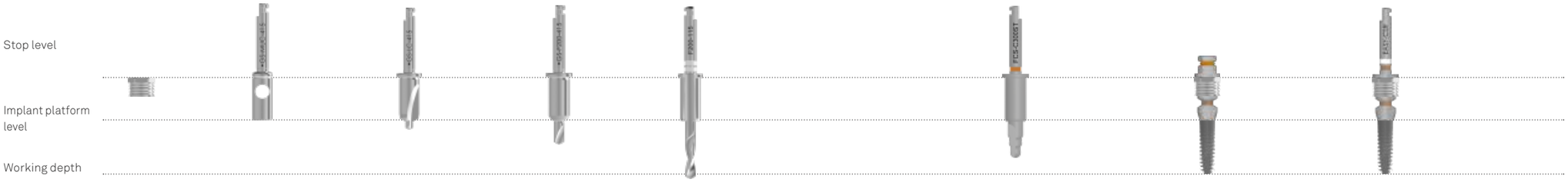
SURGICAL SEQUENCES

Surgical sequences - ø 4.15 mm sleeve

Recall that the drills over-prepare the length for a distance shown in the table on page 21 et seq. **The graphic sequence refers to implants with a depth of 11.50 mm**. For all other depths it is sufficient to substitute the length of the implant with the part of the code in black in the table below to obtain the correct sequence of instruments to be used.

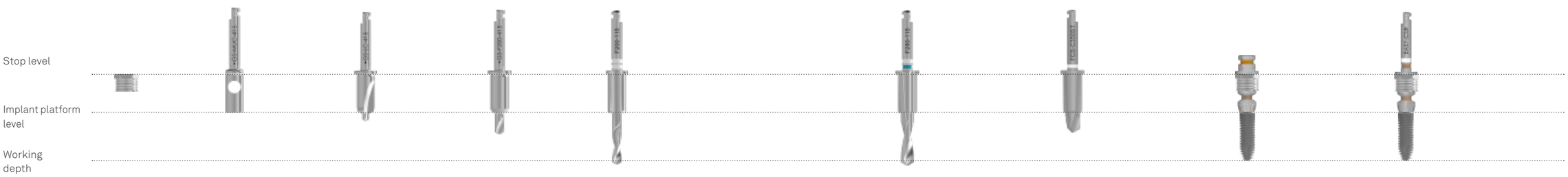
Important Warning
When inserting implants with a depth of more than 11.50 mm, it may be useful to carry out the intermediate steps also with drills that are 8.50 or 10.00 mm long, so that the corresponding longer drills will still have space to engage the sleeve with the integrated stop and thus be guided throughout their use.

Surgical sequence for implants ø 3.00ST mm



ø 3.00ST mm	Sleeve ø 4.15	GS-MUC-415	GS-LC-415	GS-F200-415	GS-F200-115-415	GS-FCS-C300ST	GS-EASY-CSR-N-415-EX	GS-EASY-CSR-N-415-CA
							50 Ncm max	50 Ncm max
D1 BONE		800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	20 rpm	20 rpm
D2 BONE		800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	-	20 rpm
D3 BONE		800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	-	20 rpm
D4 BONE		-	-	-	-	-	-	-

Surgical sequence for implants ø 3.50ST mm



ø 3.50ST mm	ø 4.15 sleeve	GS-MUC-415	GS-LC-415	GS-F200-415	GS-F200-115-415	GS-F280-115-415	GS-FCS-C350ST	GS-EASY-CSR-N-415-EX	GS-EASY-CSR-N-415-CA
								50 Ncm max	50 Ncm max
D1 BONE		800 rpm	800 rpm	800 rpm	800 rpm	800 rpm		20 rpm	20 rpm
D2 BONE		800 rpm	800 rpm	800 rpm	800 rpm	800 rpm		-	20 rpm
D3 BONE		800 rpm	800 rpm	800 rpm	800 rpm	800 rpm		-	20 rpm
D4 BONE		-	-	-	-	-		-	-

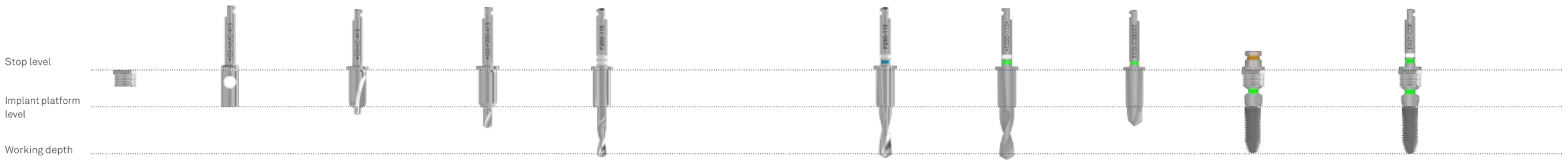
SURGICAL SEQUENCES

Surgical sequences - ø 4.15 mm sleeve

Recall that the drills over-prepare the length for a distance shown in the table on page 21 et seq. **The graphic sequence refers to implants with a depth of 11.50 mm**. For all other depths it is sufficient to substitute the length of the implant with the part of the code in black in the table below to obtain the correct sequence of instruments to be used.

Important Warning
When inserting implants with a depth of more than 11.50 mm, it may be useful to carry out the intermediate steps also with drills that are 8.50 or 10.00 mm long, so that the corresponding longer drills will still have space to engage the sleeve with the integrated stop and thus be guided throughout their use.

Surgical sequence for implants ø 3.80ST mm



ø 3.80ST mm	ø 4.15 sleeve	GS-MUC-415	GS-LC-415	GS-F200-415	GS-F200-115-415	GS-F280-115-415	GS-F320-115-415	GS-FCS-C380ST	GS-EASY-CSR-415-EX	GS-EASY-CSR-415-CA
									50 Ncm max	50 Ncm max
	D1 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			20 rpm	20 rpm
	D2 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			-	20 rpm
	D3 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			-	20 rpm
	D4 BONE	-	-	-	-	-			-	-

Surgical sequence for ø 3.80 mm implants

ø 3.80 mm	ø 4.15 sleeve	GS-MUC-415	GS-LC-415	GS-F200-415	GS-F200-115-415	GS-F280-115-415	GS-F320-115-415	GS-FCS-C380	GS-EASY-CSR-415-EX	GS-EASY-CSR-415-CA
									50 Ncm max	50 Ncm max
	D1 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			20 rpm	20 rpm
	D2 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			-	20 rpm
	D3 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			-	20 rpm
	D4 BONE	-	-	-	-	-			-	-

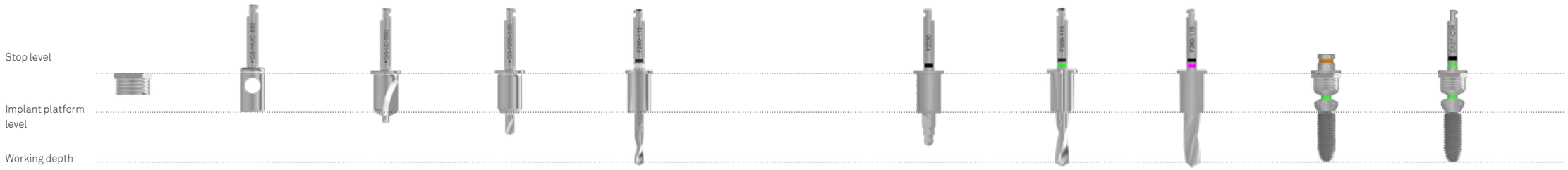
SURGICAL SEQUENCES

Surgical sequences - ø 5.50 mm sleeve

Recall that the drills over-prepare the length for a distance shown in the table on page 21 et seq. The graphic sequence refers to implants with a depth of 11.50 mm. For all other depths it is sufficient to substitute the length of the implant with the part of the code in black in the table below to obtain the correct sequence of instruments to be used.

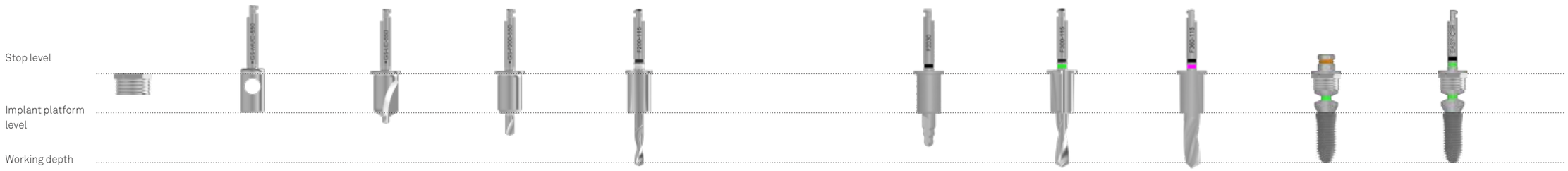
Important Warning
When inserting implants with a depth of more than 11.50 mm, it may be useful to carry out the intermediate steps also with drills that are 8.50 or 10.00 mm long, so that the corresponding longer drills will still have space to engage the sleeve with the integrated stop and thus be guided throughout their use.

Surgical sequence for implants ø 4.20RN mm



ø 4.20 RN mm	ø 5.50 sleeve	GS-MUC-550	GS-LC-550	GS-F200-550	GS-F200-115-550	GS-F2030-115-550	GS-F300-115-550	GS-F360-115-550	GS-EASY-CSR-550-EX	GS-EASY-CSR-550-CA
									50 Ncm max	50 Ncm max
	D1 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			20 rpm	20 rpm
	D2 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			-	20 rpm
	D3 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			-	20 rpm
	D4 BONE	-	-	-	-	-			-	-

Surgical sequence for ø 4.20 mm implants



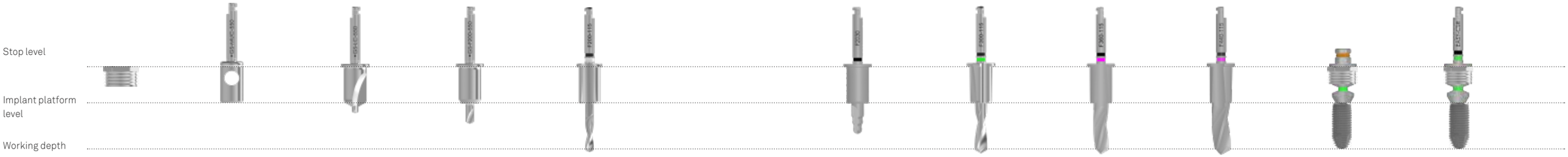
ø 4.20 mm	ø 5.50 sleeve	GS-MUC-550	GS-LC-550	GS-F200-550	GS-F200-115-550	GS-F2030-115-550	GS-F300-115-550	GS-F360-115-550	GS-EASY-CSR-550-EX	GS-EASY-CSR-550-CA
									50 Ncm max	50 Ncm max
	D1 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			20 rpm	20 rpm
	D2 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			-	20 rpm
	D3 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm			-	20 rpm
	D4 BONE	-	-	-	-	-				-

Surgical sequences - ø 5.50 mm sleeve

Recall that the drills over-prepare the length for a distance shown in the table on page 21 et seq. **The graphic sequence refers to implants with a depth of 11.50 mm**. For all other depths it is sufficient to substitute the length of the implant with the part of the code in black in the table below to obtain the correct sequence of instruments to be used.

Important Warning
When inserting implants with a depth of more than 11.50 mm, it may be useful to carry out the intermediate steps also with drills that are 8.50 or 10.00 mm long, so that the corresponding longer drills will still have space to engage the sleeve with the integrated stop and thus be guided throughout their use.

Surgical sequence for ø 5.00 mm implants



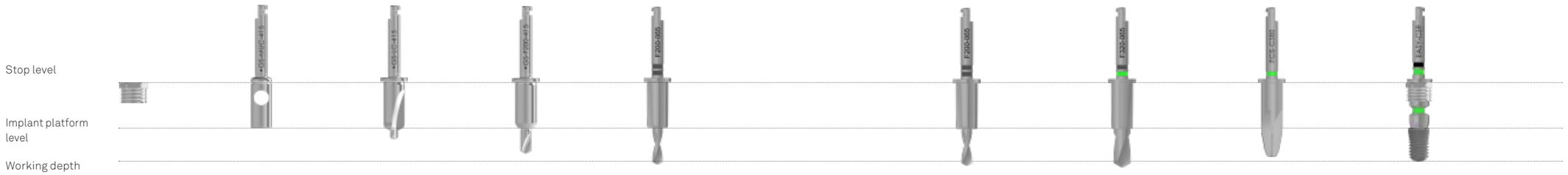
ø 5.00 RN implants	ø 5.50 sleeve	GS-MUC-550	GS-LC-550	GS-F200-550	GS-F200-115-550	GS-F2030-115-550	GS-F300-115-550	GS-F360-115-550	GS-F440-115-550	GS-EASY-CSR-550-EX	GS-EASY-CSR-550-CA
										50 Ncm max	50 Ncm max
	D1 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm				20 rpm	20 rpm
	D2 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm				-	20 rpm
	D3 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm				-	20 rpm
	D4 BONE	-	-	-	-	-				-	-

SURGICAL SEQUENCES

Surgical sequences - 6.50 mm implant depth

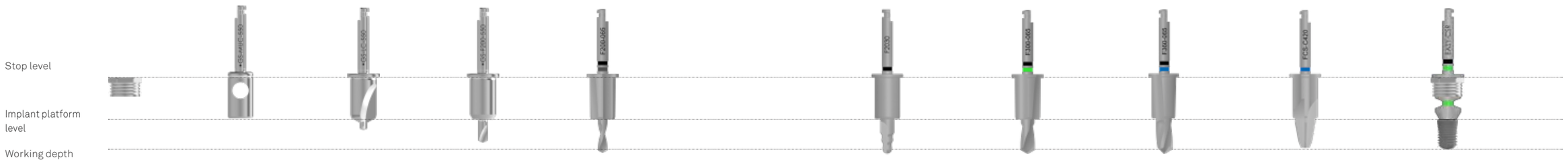
Because the implants at a depth of 6.50 mm have an insertion protocol that differs slightly from the rationales stated above, the sequence is detailed for greater clarity. Recall that the drills over-prepare the length by one size as found in the table on page 25.

Surgical sequence for implants ø 3.80 mm CSR and 6.50 mm depth



ø 3.50/3.80/3.80ST mm	ø 4.15 sleeve	GS-MUC-415	GS-LC-415	GS-F200-415	GS-F200-065-415	GS-F280-065-415	GS-F320-065-415	GS-FCS-C380	GS-EASY-CSR-415-EX
									50 Ncm max
	D1 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	20 rpm
	D2 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	-
	D3 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	-
	D4 BONE	-	-	-	-	-	-	-	-

Surgical sequence for implants ø 4.20 CSR and 6.50 mm depth



ø 4.20/5.00 mm	ø 5.50 sleeve	GS-MUC-550	GS-LC-550	GS-F200-550	GS-F200-065-550	GS-F2030-550	GS-F300-065-550	GS-F360-065-550	GS-FCS-C420	GS-EASY-CSR-550-CA
									50 Ncm max	
	D1 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	20 rpm	
	D2 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	-	
	D3 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	-	
	D4 BONE	-	-	-	-	-	-	-	-	

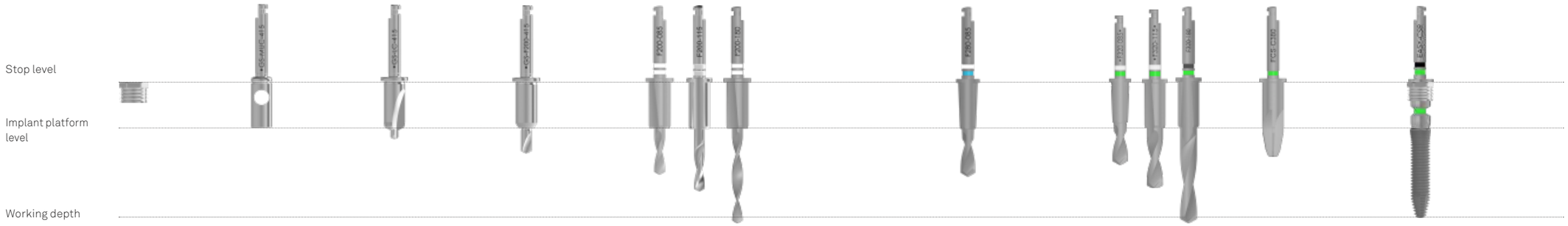
SURGICAL SEQUENCES

Surgical sequences - 18.00 mm implant depth

Because the implants at a depth of 18.00 mm have an insertion protocol that differs slightly from the rationales stated above, the sequence is detailed for greater clarity. Recall that the drills over-prepare the length by one size as found in the table on page 26.

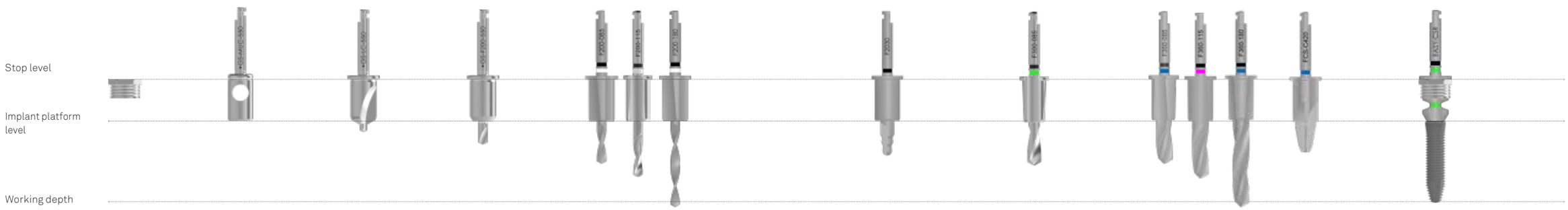
Surgical sequence for implants ø 3.80 mm CSR and 18.00 mm depth

Valid for these implants:
CSR: ø 3.50, 3.80 e 3.80ST mm



ø 3.50/3.80/3.80ST mm	ø 4.15 sleeve	GS-MUC-415	GS-LC-415	GS-F200-415	GS-F200-085-415 GS-F200-115-415 GS-F200-180-415	GS-F280-085-415	GS-F320-085-415 GS-F320-115-415 GS-F320-180-415	GS-FCS-C380	GS-EASY-CSR-415-EX
									50 Ncm max
D1 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	20 rpm
D2 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	-
D3 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	-
D4 BONE	-	-	-	-	-	-	-	-	-

Surgical sequence for implants ø 4.20 mm CSR and 18.00 mm depth

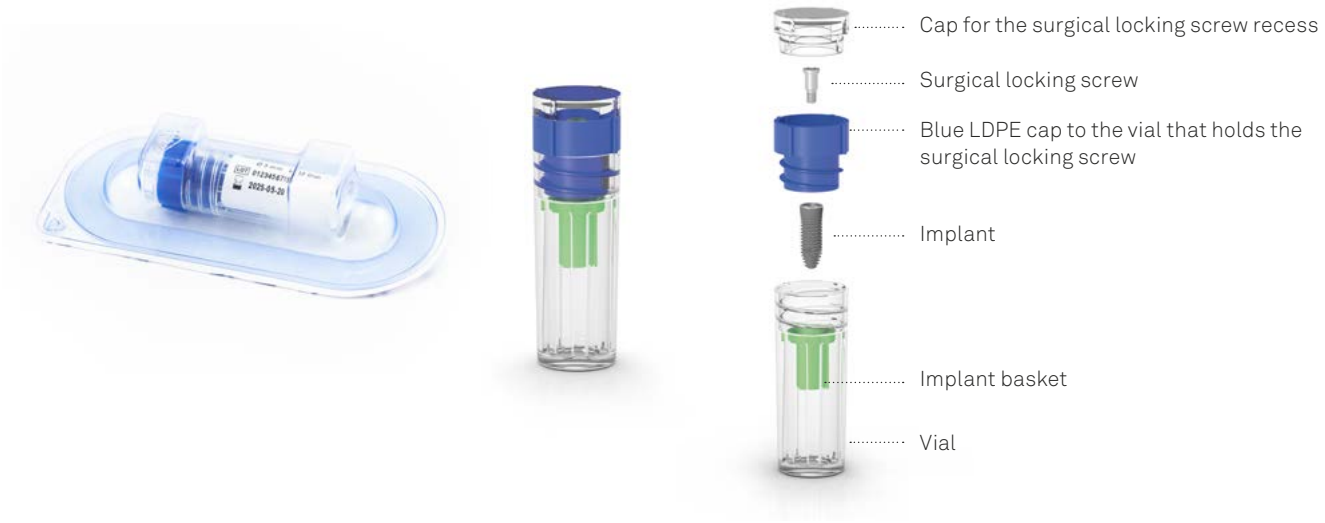


ø 4.20/5.00 mm	ø 5.50 sleeve	GS-MUC-550	GS-LC-550	GS-F200-550	GS-F200-085-550 GS-F200-115-550 GS-F200-180-550	GS-F2030-550	GS-F300-085-550	GS-F360-085-550 GS-F360-115-550 GS-F360-180-550	GS-FCS-C420	CS-EASY-CSR-550-CA
									50 Ncm max	
D1 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	20 rpm	
D2 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	-	
D3 BONE	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	800 rpm	-	
D4 BONE	-	-	-	-	-	-	-	-	-	

Implant insertion

1 Use the patient label inside the package for the patient's medical record and attach it to the Dental Card. This will make it easier to record the patient's treatment plan and can aid in keeping track of the batch used.

2 Open the blister pack and place the vial on a sterile surface (a disposable towel or sterile cloth) close to the surgical field.



3 Remove the blue cap from the vial, Immediately prior to insertion into the mouth, taking care to not remove the transparent cap on the vial containing the surgical locking screw. The implant-holder cylinder inside the vial is colour-coded to allow fast and easy identification of the endosseous diameter of the implant.

Standard procedure

(**A**) Open the vial containing the implant (in the example a CSR implant -code VSR-ZT-420RN-115).
(**B**) Take an Easy Mounter from those in the kit and using light pressure insert it on the implant to remove it from the vial and move it to the patient's mouth.

A

B

Step after insertion of the implant

Healing times
It is essential to respect the recommended healing times for implant surgery and to periodically check the stage of development, even using x-rays, of the osseointegration. The healing times prior to implant loading are influenced by the quality of the recipient bone. If there is immediate loading, the warnings on pages 4-7 should be taken into consideration.
Instead, if there is delayed loading, in order to minimise discomfort caused by compliance with the natural time needed for osseointegration, the use of the mobile provisional prostheses should be undertaken with caution through their unloading.

After healing, remove the surgical locking screws on the implants. If the contra-angle screwdriver is used, the surgical micromotor must be set with the following
parameters: 20 rpm and torque at 10 Ncm. Afterwards, depending on the protocol adopted, the tissue contours can be adapted using a suitable temporary or transmucosal healing screw. It is recommended that the healing screws be tightened manually or with a torque of no more than 10 Ncm.

Cleaning, disinfection, sterilisation and storage of surgical kits and instruments

Warning! All surgical instruments for dental implants are sold in non-sterile condition. Before positioning in the oral cavity, the instruments must be cleaned, disinfected and sterilised according to the following procedure validated by Sweden & Martina.
These processes are to be performed before first use, and before each subsequent re-use.
Repeating the processes described in this section has a minimal effect on these devices' wear and tear.

Make sure to always check the functionality of the instruments before use. Any instrument showing signs of wear should be replaced with a new device immediately. Specifically, it is recommended that the correct retention of the screwdrivers inside the engagement wells on the heads of the screws that are to be taken out and screwed in with those tools always be checked. Failure to comply with these instructions may result in cross infection and intraoperative complications.

a.Cleaning
Containers and transport to be used for cleaning have no special requirements. If automated cleaning is applied: use ultrasonic bath with a suitable cleaning solution. It is recommended that only neutral detergents be used.
The concentration of the solution and the duration of the cleaning process should be in accordance with the solution manufacturer's instructions. Use demineralised water to prevent the formation of stains and marks.
When draining, check that residues have been completely removed from recesses, holes, etc., in the devices.
If necessary, repeat the cycle or clean manually.

If manual cleaning is performed, use a suitable neutral detergent, following the manufacturer's instructions for use. Brush the products with soft bristles under running water. Using the brush, apply the cleaning solution to all surfaces. Rinse with distilled water for at least 4 minutes.
Ensure that plenty of running water flows through any holes. When cleaning drills with internal irrigation, use the pins provided with the handpieces to ensure that the irrigation holes have been thoroughly cleaned and cleared of any residual bone chips or biological tissue. After rinsing, dry the devices completely and pack them in suitable sterilisation bags. If a drying cycle is performed as part of the washing and disinfection machine cycle, do not exceed 120 °C.

b.Sterilisation
When using a vacuum autoclave, sterilise using the following procedures:
- autoclave (Gravity-Displacement Cycles) at the temperature of 121 °C with a minimum of 30 minutes of exposure and a 15-minute drying cycle;
- autoclave (Dynamic-Air-Removal Cycles) at the temperature of 132 °C with 4 minutes of exposure and at least a 20-minute drying cycle.

c. Storage
After sterilisation, the product should remain in the pouches used for sterilisation. The pouches should only be opened immediately prior to reuse. Sterilisation pouches are normally capable of maintaining sterility inside the pouch unless the pouch is damaged. Care should therefore be taken to not use components if the pouches in which they were stored are damaged and to re-sterilise them in new pouches before use. The shelf life of sterilised products in pouches should not exceed that recommended by the pouch manufacturer. The product should be stored in a cool, dry place, away from direct sunlight, and from sources of water and heat.

Cleaning, disinfection, sterilisation and storage of the CRI5-KIT torque ratchet

The processes described below are to be carried out before the first use, and before any subsequent use. Repeating the processes described in this section has a minimal effect on these devices' wear and tear. Failure to comply with these instructions may result in cross infection. Containers and transport to be used for cleaning have no special requirements. As soon as possible after each use of the wrench, place it in a container filled with a disinfectant/detergent solution and cover everything with a cloth. The purpose of this operation is to prevent that contaminants from the patient dry out, by dissolving them, and to then make cleaning easier and more effective. Completely disassemble the wrench as indicated below.

Completely unscrew the torque adjustment screw and pull out the spring inside the ratchet body handle. Do not separate the spring from the pin that acts as a stop.

Using the hexagonal bit at the base of the torque adjustment screw, unscrew and completely remove the cover fastening screw from the side marked OUT. Apply light pressure to avoid damaging the hexagonal bit.

After removing the cover, remove the two components inside the ratchet head: the notched pawl wheel and the wheel stop tooth.

For manual cleaning, mechanically clean all of the tool's external and internal surfaces with a soft bristle brush under warm water. Rinse the poorly accessible holes in the head and around the pawl wheel and wheel stop tooth by injecting hot water using a syringe without the needle. If necessary, do the same for the inside of the handle and torque adjuster. Use a suitable neutral detergent, following the manufacturer's instructions for its use. Using the brush, apply the cleaning solution to all surfaces. Rinse with distilled water for at least 4 minutes. Make sure that plenty of running water flushes through all the passages. If automated cleaning is applied: use ultrasonic bath with a suitable cleaning solution.
It is recommended that only neutral detergents be used. The concentration of the solution and the duration of the cleaning process should be in accordance with the solution manufacturer's instructions. Use demineralised water to prevent the formation of stains and marks. During this cycle, avoid that the parts make contact with one another as this can cause deterioration of the machined surfaces, and a resulting loss of torque measurement accuracy. When draining, check that residues have been completely removed from recesses, holes, etc., in the devices. If necessary, repeat the cycle or clean manually.
Observation: Blood residues or other deposits reduce the effectiveness of sterilisation, which is why it is important to thoroughly clean all the parts. During all cleaning cycles, avoid that the liquids spurt or splash and work with appropriate personal protection. Avoid contact between this instrument and other nickel-plated instruments. The parts must be reassembled before sterilisation. Dry the parts and lubricate the functional areas moderately and reassemble the wrench as shown in the figures below. Excess lubricant will cause it to come up on the instrument's surface during sterilisation. Use only the lubricant supplied.

After having lubricated the parts shown in the figures, assemble the two elements that make up the ratchet head in the following sequence: toothed pawl wheel and then the wheel stop tooth.

Lubricate the areas that make contact between the pawl wheel tooth and the wheel stop tooth pin.

Once parts 2 and 3 have been lubricated and assembled in the ratchet head, position the cover and rotate the ratchet body from the OUT side. Tighten the screw with the hexagonal tip of the torque adjustment screw.

Lubricate the spring inside the ratchet handle as shown in the figure. Assemble the torque adjustment screw, checking that the instrument is working properly by manually activating the pawl wheel.

Sterilization: Before sterilisation, the wrench must be fully assembled and adjusted to its minimum torque. The medical device must undergo steam sterilisation.
Recommended cycle: • 3 (4 for the US market) pre-vacuums,
• 18 minutes at 134°C / 273°F at 2 bars and drying for 20 minutes.
We recommend the use of devices fitted with vacuum pumps (type B) to reduce the risk of air pockets forming. This recommendation is particularly important for hollow tools and to guarantee perfect drying. The hot air steriliser is not recommended as it can accelerate the ageing of the spring and consequently cause modification of the torque.
This procedure is essential to maintain the precision of the instrument within a tolerance range of ± 3.5 Ncm. Operate the torque and insertion mechanism to check its correct operation.
Remove all traces of lubricant from the external surfaces of the key. Place the device in a suitable sterilization bag. Disassembly and reassembly operations must be carried out following the instructions provided.

Cleaning, disinfection, sterilization and storage of the TWL torque wrench

The TWL torque wrench and its screwdriver are produced by Elos Medtech Pinol A/S.
For the cleaning, disinfection, sterilization and storage processes please refer to the producer's indications at the following link https://elosmedtech.com/IFU/

Cleaning/sterilisation/storage of prosthetic components

Warning! All surgical instruments for dental implants are sold in non-sterile condition. Before positioning in the oral cavity, the instruments must be cleaned, disinfected and sterilised according to the following procedure validated by Sweden & Martina.
Failure to comply with these instructions may result in cross infection and intraoperative complications.

a.Cleaning
Containers and transport to be used for cleaning have no special requirements. If automated cleaning is applied: use ultrasonic bath with a suitable cleaning solution. It is recommended that only neutral detergents be used.
The concentration of the solution and the duration of the cleaning process should be in accordance with the solution manufacturer's instructions. Use demineralised water to prevent the formation of stains and marks.
When draining, check that residues have been completely removed from recesses, holes, etc., in the devices.
If necessary, repeat the cycle or clean manually.

If manual cleaning is performed, use a suitable neutral detergent, following the manufacturer's instructions for use. Brush the products with soft bristles under running water. Using the brush, apply the cleaning solution to all surfaces. Rinse with distilled water for at least 4 minutes.
Ensure that plenty of running water flows through any holes. When cleaning drills with internal irrigation, use the pins provided with the handpieces to ensure that the irrigation holes have been thoroughly cleaned and cleared of any residual bone chips or biological tissue. After rinsing, dry the devices completely and pack them in suitable sterilisation bags. If a drying cycle is performed as part of the washing and disinfection machine cycle, do not exceed 120 °C.

b.Sterilisation
We reccomend this vaacum procedure of sterilization with autoclave before use:
- autoclave (Gravity-Displacement Cycles) at the temperature of 121 °C with a minimum of 30 minutes of exposure and a 15-minute drying cycle;
- autoclave (Dynamic-Air-Removal Cycles) at the temperature of 132 °C with 4 minutes of exposure and at least a 20-minute drying cycle.

c. Storage
After sterilisation, the product should remain in the pouches used for sterilisation. The pouches should only be opened immediately prior to use. Sterilisation pouches are normally capable of maintaining sterility inside the pouch unless the pouch is damaged. Care should therefore be taken to not use components if the pouches in which they were stored are damaged and to re-sterilise them in new pouches before re-use. The shelf life of sterilised products in pouches should not exceed that recommended by the pouch manufacturer. The product should be stored in a cool, dry place, away from direct sunlight, and from sources of water and heat.

Please visit the website **https://www.sweden-martina.com/en_gb/ifu/** for more information on:
- material composition;
- maintenance, cleaning/sterilization/storage of prosthetic components, surgical instrumentation and the
- CRI5-KIT torque control ratchet,
- legend of symbols used in packaging.

THE LAST REVISION DATE OF THIS MANUAL IS NOVEMBER 2022.

The design and manufacture of the devices covered by this manual has been undertaken in compliance with the most up-to-date directives and harmonised standards with regard to materials used, manufacturing processes, sterilisation, information provided and packaging.

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